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**Sustaining a Nonrepresentative Democracy:
How Education Shapes Long-term Voting Patterns**

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**Sustaining a Nonrepresentative Democracy:
How Education Shapes Long-term Voting Patterns**

by

Jamie Mary Carroll

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Abstract

Sustaining a Nonrepresentative Democracy: How Education Shapes Long-term Voting Patterns

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Abstract:

Voter turnout in the United States is lower than most other advanced democracies and is largely driven by educational attainment. Thus, those who have had success within educational institutions are more represented in our democracy. At its core, voting is an opportunity for individuals to voice their opinions to those in positions of power in government. The link between education and voting may be through encouraging students to use their voices and empowering them to speak to those in positions of power across the life course. Using the High School & Beyond Dataset linked to individuals voting records in midlife, I examine three aspects of the link between education and voting in midlife to better understand the educational pathways that empower individuals to vote. First, I extend literature on the link between education and voting in early adulthood by estimating the effects of college entry, completion, and context on voting in

midlife. I find that early college entry effects midlife voting, and higher levels of degree attainment are associated with voting more often in midlife. Second, I focus on adolescence as a critical period for identity development and empowerment and investigate high school experiences that support voting. Specifically, I examine the relationship between high school (dis)empowering experiences—leadership positions, advanced course-taking, and discipline—and voting in midlife, paying critical attention to the role of background, skills, educational attainment, and early voting in the process. I find that advanced course-taking positively and school discipline negatively predict voting in midlife, even when considering these factors. Lastly, I examine how teachers mold political efficacy through their perceptions of students’ potential and conformity and find that positive perceptions of students are associated with higher rates of voting, and the association does not operate through students’ background, skills, or schooling experiences. In all, I find that adolescence is a critical period for individual empowerment, and experiences in schools contribute to whether individuals will exercise their right to vote across their lives. The unequal distribution of empowering experiences in schools may sustain a nonrepresentative democracy.

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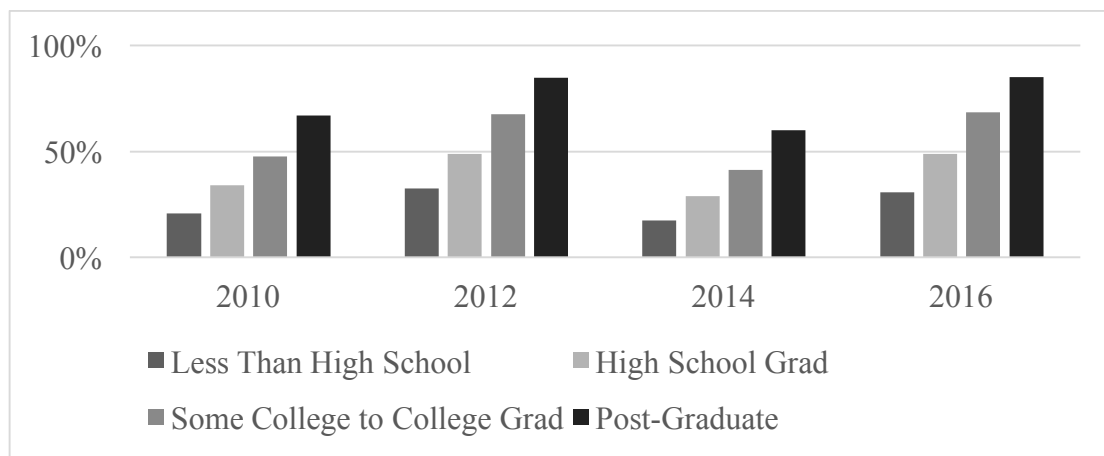
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Chapter 1: Education, Voting, and Democracy

Voter turnout in the United States is lower than most other advanced democracies. Only about 60% of voting aged adults voted in the 2016 presidential election and only about 50% voted in the 2018 midterm elections (McDonald 2018). The social drivers of political participation make these low turnout rates particularly problematic; white, college-educated, older individuals are overrepresented in the electorate (McDonald 2018). As shown in Figure 1.1, the gradient in voting by education persists across each election year and each type of election (midterm versus presidential). This education-voting link results in an electorate that is more highly educated than the U.S. voting age population. Figure 1.2 shows that, in the 2016 election, about 70% of the electorate had some postsecondary education, compared with only 60% of the population. Thus, the people who choose representatives that make decisions about healthcare, civil rights, education, family policies, taxes and other challenges facing the country today are disproportionately those who have been successful within educational institutions. This gap in representation not only shapes which policies candidates choose to support, but also who the candidates engage with during elections (Enos, Fowler, and Vavreck 2014; Miller 1980; Verba and Nie 1972). Although a strategy aimed at gaining the support of likely voters may help win elections, it does not ensure that elected officials are taking into consideration the wishes, needs, and goals of all of the people they are elected to represent. People who perceive that the government does not represent their interests are more likely to disengage from the political process. Political apathy among citizens is often discussed as a failing of the individual—some people are just not interested in politics. Recognizing the social structures that perpetuate

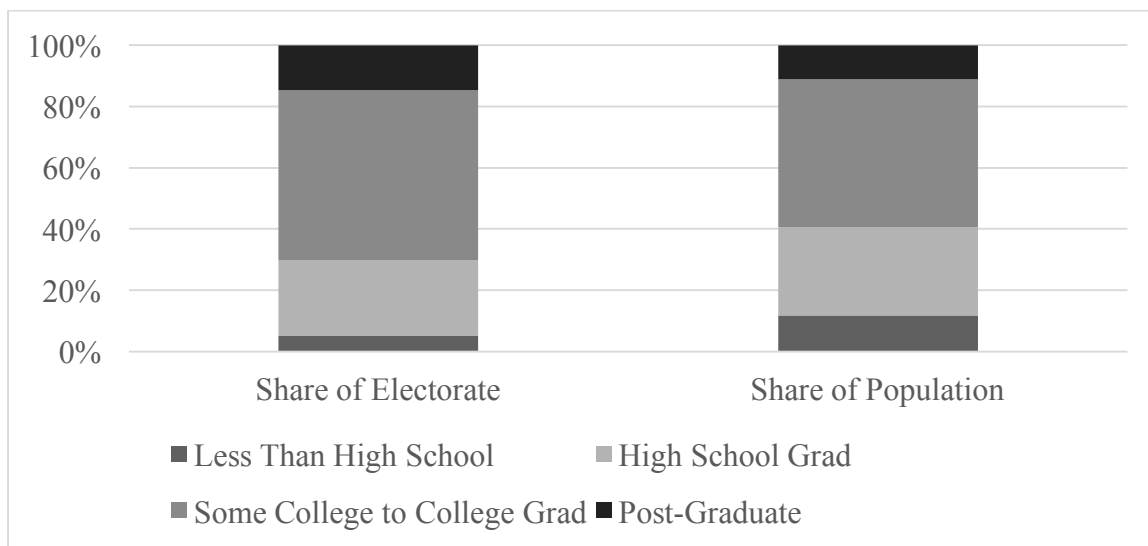
inequality in the electorate and sustain a democracy that is not representative of the diversity of our country is essential to place individual choices to (not) vote into context.

Figure 1.1: Voting rates by educational attainment in the 2010, 2012, 2014, and 2016 elections.



Note: Data come from Census estimates (<https://www.census.gov/topics/public-sector/voting/data/tables.html>).

Figure 1.2: The share of the electorate for the 2016 election and the population by educational attainment.



Note: Data come from Census estimates (<https://www.census.gov/topics/public-sector/voting/data/tables.html>).

Political apathy could be viewed as a failing of the education system. Early education scholars like John Dewey and Horace Mann focused on schools as essential elements in creating productive citizens who will take the baton of leadership in the next generation. One of the stated goals of public education in particular is to give students the skills and dispositions necessary to be active in their communities and participate in a democracy. Literacy skills are an essential element of political participation because people need to read and interpret information from media sources, candidates, and political organizations to make informed decisions. Problem solving and critical thinking skills build on these literacy skills for potential voters to weigh the costs and benefits associated with different policies and candidates and decide which candidate to support (Downs 1957; Przeworski 2003). However, having the skills necessary for political engagement does not guarantee that an individual will vote. Instilling in individuals the importance of voting and of participating in the political process is also essential for democratic participation. The extent to which educational institutions do in fact instill in students the importance of voting and the skills necessary to be engaged citizens remains up for debate.

The strong link between educational attainment and voting may suggest that schools are doing a good job; the more years of schooling you have, the more likely you are to vote (Berinsky and Lenz 2011; Nie, Junn, and Stehlik-Barry 1996). However, as more and more people are graduating from high school and going to college, voter turnout has remained unchanged. Even with the most highly educated population in our history as a country—with more than half of the country going to college—voter turnout rates are well below most other advanced democracies. In fact, voter turnout is the same as when only a quarter of the population went to college (Horowitz 2015). These trends suggest that as college education becomes less

select and the population of college-goers becomes more diverse, the value of a college degree for voting decreases. Research has examined the causal effect of education on voting, but there are mixed results related to how education is defined and when the relationship between education and voting is examined. For example, research that examines the effects of an increase in the number of years of schooling due to compulsory schooling laws has found null effects on voting in early adulthood (Pelkonen 2012). However, research that focuses on levels of schooling changes, such as graduating from high school or going to college, does find a substantial, causal effect of education on voting (Dee 2003, 2004; Milligan, Moretti, and Oreopoulos 2004). There are nuances within the relationship between education and voting that need to be explored, both empirically and theoretically, to gain a better understanding of why those with a higher level of education are more likely to vote.

The Role of Education in Voting Decisions

A common argument for the link between educational attainment and voting is that students develop skills and dispositions during school that support political participation along a wide spectrum, including participation in voluntary associations, engaging with social movements, signing petitions, writing to government officials, running for office, and voting (Nie et al. 1996; Verba and Nie 1972). I focus on voting because it is one form of conventional political participation that is generally the least restrictive and time-consuming, but has powerful implications. At its core, voting is an opportunity for citizens to tell their government what to do by selecting particular referendum or candidates. However, the process of voting and the regulations surrounding it can take this power away from certain groups of citizens both formally, through voter-ID laws and felony disenfranchisement, and informally, through barriers

to registering to vote or submitting ballots (Knack 1995; Milligan et al. 2004; Uggen and Manza 2002). According to the rational voter model, individuals choose to vote when their prediction of the benefits associated with one candidate exceed both the predicted benefits associated with the other candidate and the costs associated with voting (Downs 1957; Przeworski 2003). For some individuals, this calculation is the same for every election because the perceived benefits of voting always outweigh the costs (habitual voters) or the costs of voting always outweigh the perceived benefits associated with any candidate (habitual nonvoters). For others, this is a process they engage with during each election cycle to decide whether or not they will vote in a specific election. Within this spectrum of voting, from never voting to always voting, schools can play a role by lowering the costs associated with voting and shaping one's motivation to vote.

There are two main motivations for voting (Nie et al. 1996; Smets and van Ham 2013; Straughn and Andriot 2011). The first is an individual motivation to vote, which stems from the desire for an outcome of the election that impacts a person directly (Smets and van Ham 2013; Straughn and Andriot 2011). Individuals who vote in a given election for this reason have to be aware of the electoral options, the issues being debated on both sides, the level of competition in the election, and the ways the election could impact their lives personally (Campbell 2006; Harder and Krosnick 2008). For example, someone concerned about healthcare benefits may vote in a presidential election if the individual knows that they could lose benefits if one candidate won instead of another. Individuals who vote in their own interest should have knowledge of the political system, be able to understand and interpret the information provided to them, and have problem solving skills to ascertain the correct response (Galston 2001; Nie et

al. 1996). Trying to understand voter turnout through this lens suggests that individuals vote because they have the human capital, or skills, that enable political participation (Bruch and Soss 2016).

Another reason individuals vote is tied to emotional connections to politics and beliefs in the importance of voting to sustain a democracy (Campbell 2006; Harder and Krosnick 2008). People who vote for this reason are civically motivated and have enough trust in the political system to believe that the voting system is fair and that their vote matters. Part of this motivation is related to beliefs about one's role as a citizen. For example, lower status individuals who have been failed by institutions throughout their lives often feel they do not have a place in the political world, and, thus, opt out of voting (Bourdieu 1984; Bruch and Soss 2016; Laurison 2015; Lerman and Weaver 2014). Voting is an opportunity to exercise one's voice in government, but some people may believe that their voice does not matter. For example, generalized trust in authority and institutions supports civically motivated voters (Paxton 2002). People who have mainly experienced authority relations in institutions that are top-down—with those in position of power instructing and disciplining them to do as they are told—may not understand the power of voting. Voting is more ground up—individuals have the opportunity to tell those in positions of power what to do. Trying to understand voter turnout through this lens suggests that individuals vote because of their relationships with institutions, neighbors, and authority figures (Bruch and Soss 2016; Bourdieu 1984). Thus, educational institutions can support political participation by socializing students to believe that their vote matters and by shaping students' relationships with authority and institutions both inside and outside the

political realm (Nie et al. 1996; Bourdieu 1984; Bruch and Soss 2016; Lerman and Weaver 2014).

Political Preparation in the School Context

Through these mechanisms, education can support voting for all individuals by supporting the skills, dispositions, and empowerment that contribute to voting decisions, but preparing students to be engaged citizens is not the only, or even primary, goal of education. Preparation for the labor market often dominates education discussions, supporting differential development of skills, dispositions and empowerment related to potential labor market position. In high schools in particular, the experiences students have inside and outside the classroom are stratified by their post high school plans, either towards college or directly into the labor market. The types of learning experiences that put students on the pathway to college, such as advanced course-taking and leadership positions, also support the skills and empowerment that contribute to voting. The preparation students receive to be engaged citizens occurs within a context that prepares students for unequal life pathways into college and the labor market. One way that education may be related to voting is through disempowering students politically who are not on the pathway to college.

As individuals progress through education, they receive signals from their peers, teachers, and school that shape their skills, dispositions, and access to power. During adolescence, as individuals approach voting eligible age, opportunities for empowerment, or disempowerment, inside schools may be particularly important in shaping one's political identity. As adolescents gain more independence from their families in their late teens, they search for more autonomy and relationships characterized by shared value and power (Eccles et al. 1993; Eccles and Roeser

2011; Elder 1998; McAdams and Olson 2010). Although they enter high school with different aspirations, skills, habits, and feelings of autonomy, students' political identities continue to form in relation to signals they receive from authority figures and peers within their school.

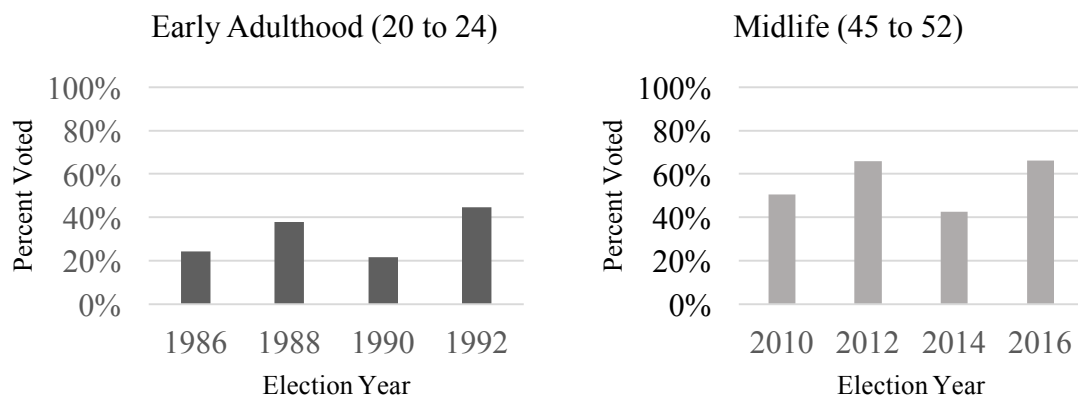
Adolescents have heightened concerns about how they rank according to their peers (Barber, Eccles, and Stone 2001), so having an advantaged position, such as being a club leader or taking advanced courses, or a disadvantaged position, such as being disciplined or suspended, may reinforce the importance of their political voice (Bourdieu and Passeron 1977; Bruch and Soss 2018; Janmaat, Mostafa, and Hoskins 2014; Levinson 2012). Interactions with authority figures inside school teach adolescents where they belong on the spectrum of power relations: from disengaged, passive, and powerless to autonomous, active, and empowered (Levinson 2012). Positions and relationships within institutions during this period can signal how individuals may be treated in institutions as adults, shaping their political identity across the life course.

Voting across the Life Course

Most of the prior research that has investigated the links between schooling and voting outcomes has focused on the short-term, looking at voting in early adulthood. However, voting in early adulthood is a relatively unique event, with less than half of early adulthood individuals choosing to vote in each presidential election. Voting in midlife, however, is a common event, with more than 65% of midlife individuals voting in presidential elections (McDonald 2018). In fact, for the cohort of interest in this study, their voting rates in early adulthood were about half their voting rates in midlife, as shown in Figure 1.3. Although early voting is one of the strongest predictors of later voting, many individuals begin voting in midlife as they settle into their lives and grow connections with their community. Early adulthood is a period of transition, often

when individuals focus on their education and their jobs instead of participating in elections. The topics of most campaigns—healthcare, taxes, and schools—may take the backseat for young adults just trying to get their lives started on their own. The gap in participation between these two life stages may represent different priorities, and education may impact voting during these time periods in different ways. In this dissertation, I examine the link between education and voting for those in midlife, focusing both on postsecondary educational attainment and the secondary schooling pathways that lead students to college.

Figure 1.3: Voting rates in early adulthood and midlife for individuals born around 1964.



Note: Data come from Census estimates (<https://www.census.gov/topics/public-sector/voting/data/tables.html>).

Educational Contexts and Voting in Midlife

I examine three aspects of the link between education and voting in midlife to better understand the educational pathways that support higher voter turnout. First, in Chapter 2, I discuss the challenges involved in studying the connections between education and voting related to data availability and sample selection. Research has found that individuals often over-report voting on surveys because voting is a socially desirable outcome (DeBell et al. 2018). Using

voting records can erase the self-report bias, but voting records do not contain detailed education data. For this dissertation, I connect a nationally representative survey to individuals' voting records, and outline the implications, challenges, and methods involved in this process.

In Chapter 3, I extend the literature on the effects of college entry on voting in early adulthood by estimating the effects of college entry, completion, and context on voting in midlife. Although going to college appears to be a critical point defining individuals' political trajectories, the outcome of their college experience, whether they graduate and what degree they receive, may also be critical in the link between education and voting. In addition, the institutional context may shape the relationship, as those in more selective colleges have different returns to a college degree on their labor market outcomes, which may feed into political outcomes.

Then, in Chapter 4, I focus on adolescence as a critical period for the development of one's identity and feelings of where they fit in the world to examine what high school experiences support voting in midlife. If students during high school have opportunities that teach them how to use their voice and that their voice matters, they may be more likely to vote later in life, regardless of their college education. However, students who have disempowering experiences that teach them their voice does not matter and that their role is not to engage with authority figures may be disengaged from the political process. I pay critical attention to the skills and dispositions students bring with them to high school, and their family background, to underscore the importance of these (dis)empowering experiences in adolescence.

Finally, in Chapter 5, I examine how teachers mold political efficacy and their students' later voting through their perceptions of students' potential and conformity. Relationships with

authority figures during adolescence can socialize students into their adulthood roles, whether they are silent followers, active participants, or leaders in the political realm. Teachers' subtle treatment of students in the classroom—as active learners who participate in their own education or empty vessels to be filled with knowledge and disciplined—feed into students' feelings of empowerment and likelihood of engaging in politics later in their lives. Teachers' perceptions of students structure these classroom interactions and can have a powerful impact on students' lives.

In all, the goal of this dissertation is to gain a better understanding of how educational experiences in adolescence and early adulthood shape who does and does not vote in midlife. The crux of my argument is that adolescence is a critical period for individual empowerment, and experiences in schools that prepare students to use their voice and speak to those in positions of power contribute to whether individuals will exercise their right to vote across their lives. The unequal distribution of empowering experiences in schools may sustain a nonrepresentative democracy.

Chapter 2: Representative Samples:

Challenges, Implications, and Methods for Matching Voting Records to Survey Data

The increase in access to data across a variety of sources—including surveys, administrative data, and commercial data—allows researchers to examine a wider variety of social phenomenon with an even wider variety of research methods. Surveys have traditionally served as a main data source for social science research, but this method of data collection can be costly and relies on individuals to self-report their characteristics and behaviors. Survey questions that have socially desirable answers can lead to biased estimates in particular. For example, high school students often report that they are in a college preparatory program when they have only taken low levels of coursework (Arum and Shavit 1995). A long history of research has found that voting is often over-reported in surveys, which can lead to biased estimates of the types of people who vote and the social and institutional structures that support or suppress voter turnout (DeBell et al. 2018). To address the social desirability bias, some researchers have turned to matching surveys to administrative or commercial data. In this chapter, I discuss the implications, assumptions, possible bias, and techniques associated with matching a sample of individuals drawn for a nationally representative survey to their voting records maintained through a commercial data source.

The gaps between aggregate estimates of voter turnout from self-reported sources and administrative sources are stark and lead to diverging conclusions about engagement among the electorate. For example, voter turnout for the 2008 presidential election was 78% according to estimates from the National Election Study (NES), compared to only 57% from estimates using state voting records (Ansolabehere and Hersh 2012; McDonald 2018). This gap is not equally

distributed across groups, which leads to differential conclusions about how representative the electorate is of the population of eligible voters. Because those who misreport voting often look like voters—they are white, highly educated, and connected to their communities—gaps in voting may be exaggerated in analyses that use self-reports of voting. For example, when comparing gaps between voters and nonvoters, ascertained through voting records compared with self-reports, Ansolabehere and Hersh (2012) find that gaps by educational attainment are higher among those who self-reported voting than represented in voting records. Research using the Current Population Survey (CPS) to estimate voter turnout often includes a correction for possible over-report bias constructed using state-level voter turnout from states' voting records (Hur and Achen 2013; McDonald 2018). Researchers have also used these state administrative voting records from the states to perform analyses (Parry, Smith, and Henry 2012; Sondheimer and Green 2010). Using an indicator of voting from administrative sources is appealing because it only includes individuals whose votes are recognized by their state. These records tend to be limited in scope, however, generally including only name, birthdate, address, and date of registration maintained by the state.

Matching survey data to these voting records is one previously used method for estimating predictors of voting. This method is not without its limitations, particularly when individuals represented in voting records differ from the sample of individuals the survey design aims to represent. In one interesting case, a pair of researchers collected name, address, and birthdate for sample members of three education experiments that increased educational attainment (including the Perry Preschool Experiment) and matched them to voting records to examine the causal link between education and voting (Sondheimer and Green 2010). Although

they find higher rates of voting among the treated than untreated groups, they note differential matching into the voting records that could bias their results. The timing of the original data collection, the timing of the updated data collection, the maintenance of voter records by states, and the nature of matching on limited information make it challenging to disentangle why a person was not matched. Whether a person was not matched to voting records because they were not registered, they moved, they changed their name, or they were dropped from the voting records by their state would suggest bias in different directions and complicate any conclusions one can draw about the link between education and voting.

As part of a midlife follow-up to a nationally representative sample of high school students, my colleagues matched sample members to their voting records in Catalist, a commercial data source that compiles detailed registration and voting data from all the states. The purpose of this matching process was to be able to estimate the possible long-term effects of high school and college education on voting because research has found that the electorate in each election is over-represented by college-educated individuals. I aim to investigate the early life educational processes that may sustain an electorate that is not representative of the population of the United States. Although the survey sample I aim to match is representative of high school sophomores and seniors in 1980, I may lose individuals through the matching process that may cause the sample to no longer be representative of the U.S. population. Given my research purposes and the characteristics of the data available to match, there are four kinds of bias that I examine: data availability, voting history, education, and background characteristics. Next, I discuss the two data sources and the potential for biased matches on each

of these dimensions. Then, I outline the process of matching, the process of evaluating these matches, and the technique I use to account for the possible bias in the match process.

Datasets

High School and Beyond

The High School and Beyond (HS&B) dataset started as a nationally representative sample of about 60,000 high school sophomores and seniors nested within high schools in 1980. A nationally representative panel (26,820¹) was selected in 1984 and followed-up with surveys in 1986 and 1992 (sophomore cohort only). The surveys included questions about high school and postsecondary education experiences, workforce participation, civic engagement, family background, and health and were supplemented by assessments, transcripts, and teacher and parent surveys. My colleagues initiated another round of data collection when respondents were about 50 years old (2013-2015) which included a survey on labor force participation, educational attainment, and health. About 60% of the original sample members participated in this midlife follow-up survey. The National Center for Education Statistics (NCES) gave us permission to use the personal identifying information of HS&B sample members to match them within administrative and commercial data sources. During each round of surveys, NCES collected name, address, phone number, and date of birth for sample members, leaving us with the possibility of multiple names, addresses, and phone numbers.

Catalist

Catalist, LLC, is a political data vendor that has created a nationwide dataset from state voter registration records, cross-referenced with other public and private datasets. The company

¹ All N's are rounded to the nearest 10 per National Center for Education Statistics (NCES) requirements.

reports that their dataset includes over 240 million records, 185 million from voting records and 55 million from other sources. For a fee, Catalist matches data provided by customers to their database and returns matched records. The Catalist algorithm is proprietary, posing a challenge for researchers interested in evaluating matches. Given that their purpose is to supply political campaigns with current voter information leading up to elections, they regularly update their database using the voting records supplied by states. Thus, the addresses (registration address and mailing address), phone numbers, and names in their database match the current address of registered voters, not historical records of addresses, phone numbers, and names. Date of birth is one indicator that is favorable to match on since it does not change over the years, but the quality of dates of birth recorded varies across states. For instance, some states report only the year of birth and other states report the year of birth and give everyone the same birthday (January 1st). Catalist tries to adjust for these data issues by using other commercial data sources, but some records still have missing or partial dates of birth. Despite these limitations, Catalist does include administrative records of voting for all 50 states and works with researchers to assist in matching records into their database.

Possible Sources of Bias

Data Availability

For a matching process to be valid, the personally identifiable information in both datasets needs to both match and be correct. The timing and process of data collection for both datasets make it difficult to be confident that valid measures for an individual will match. In the HS&B dataset, the availability of these data differ by the number of survey responses, with those who only participated in the base year survey having the least amount of information and those

who participated in the midlife survey having the most updated information. The Catalist data only has a current address, thus those who were found during the midlife survey collection (whether they participated or not) have better data available than those who were not found after the 1986 or 1992 surveys. Reasons why someone was not found range from practical reasons, such as those who are deceased, to more nuanced reasons, such as system avoidance. Individuals who have had negative experiences with formal institutions, including the criminal justice system, schools, and the government, may avoid these and similar other intuitions that carry a paper-trail (Brayne 2014; Lerman and Weaver 2014). These same individuals may be weary of survey researchers as well, avoiding the letters, phone calls, and knocks on doors when trying to be found for a follow-up survey. In addition, anyone who is currently or has been incarcerated may be underrepresented in the Catalist sample because of formal or informal felony disenfranchisement. I consider factors related to data availability and system avoidance, including survey participation across the years, disposition during the midlife survey collection and prior survey years, whether the individual reported moving during the survey, and any survey reports of discipline or criminal justice contact.

Political Engagement

Catalist maintains voting records from the states, but whether they only include those who have ever registered to vote or include those who have never registered to vote is unclear from their documentation and discussions with their data team. Their base data comes from state and county voting records, which would not contain individuals who never registered to vote, but the supplemented commercial data may include these individuals. Because this commercial data is only available to Catalist, and not those who purchase their voting data, we cannot test for

these possible differences. Catalist's goal is to be representative of possible voters, not necessarily the entire population, so it is possible that their database excludes individuals who have never registered to vote. If so, chronic nonvoters will be excluded from my analyses, possibly limiting the conclusions I can draw about how schools may (dis)empower individuals to (not) vote. To examine this possibility, I use self-reported measures of registering to vote, voting, and party affiliation from the HS&B survey. Although individuals often over-report voting (DeBell et al. 2018), I use these measures as a signal of political interest in early adulthood, which may capture political engagement and likelihood of registering to vote across the life course.

Education

Building from the prior point, if Catalist is over-represented by politically engaged individuals, it may also be skewed by educational attainment. Education is one of the strongest predictors of voting, suggesting that those who have ever registered to vote or have ever voted are more highly educated. The focus of my analyses is understanding how early life educational experiences may be related to voting later in life, so I must consider whether selection into the matched sample is biased by educational factors. I examine high school and postsecondary education, including educational attainment, skills, and course-taking, to assess and correct for education-related bias in the matched sample.

Background

The electorate in the U.S. is overrepresented by those with higher levels of education, but this representation is ever further skewed by differences in voting by demographic characteristics. Race, age, gender, marital status, and family background have all been found to

predict voting (Leighley and Nagler 2013), and may additionally be unequally distributed across individuals in the Catalist sample, further complicating the potential bias discussed above. One group in particular that may be difficult to match in Catalist is married women because of the possibility of name changes across the life course. Although HS&B collected this information during each survey round, those who chose not to report their name change, did not participate in the study or were not found may have different names than those supplied for the match process. I examine possible differences linked to gender and marital status, as well as the demographic characteristics listed above, to ensure my analytic sample of individuals matched in Catalist remains nationally representative.

Data and Methods

The Matching Process

There were three steps to matching the HS&B sample members into the Catalist database. First, my colleagues supplied Catalist with identifying data, which Catalist then matched to records using their proprietary algorithm. To increase the opportunities for Catalist to find a match, my colleagues submitted multiple records for each HS&B individual with multiple names, addresses, and phone numbers collected during each survey round. This allowed for the possibility of each individual being matched to multiple records in Catalist. Then, my colleagues evaluated these matches by examining how well each field within Catalist (first, middle, and last name, registration address or mailing address, date of birth, and phone number) matched with the submitted records. This process resulted in each HS&B-Catalist match being given a score ranging from a great match (all fields match) to a nonmatch (only one field matched). Next, my colleagues matched the records in Catalist again, both to obtain more updated voting records

(including the 2016 presidential election) and to examine the consistency in matches. They again evaluated how well each field matched, giving each record a score of how well each field in the HS&B data matched with each record Catalist sent. Lastly, using the provided scores, I selected the best HS&B-Catalist match that was consistent across matching rounds. I only consider an HS&B-Catalist pair to be a match if at least three fields matched (e.g. name, address, date of birth) in at least one round of matching, including those whose address may have changed and whose dates of birth had only limited information between time points.

The final sample of matched sophomore and senior cohort members from HS&B is 18,500, about a 70% match rate. Table 2.1 displays the rates of voting found within the sample compared to estimates from external sources of a similar cohort of individuals. The overall voting rates are similar, albeit slightly higher in the matched sample, suggesting the possibility of some bias in the estimates.

Table 2.1 Rates of voting in the HS&B sample compared with estimates from the Census.

<i>Election Year</i>	<i>Census Estimates</i>	<i>HS&B Estimates (panel weight)</i>	<i>HS&B Estimates (Catalist weight)</i>
2010	49%	52%	50%
2012	67%	73%	69%
2014	49%	50%	47%
2016	66%	73%	69%

Source: Author's calculations from HS&B weighted with the panel weight and Catalist weight. Census estimates of high school graduates in midlife (ages 45 to 64) from <https://www.census.gov/topics/public-sector/voting/data/tables.html>

Match Analysis

In the following section, I describe the process I used to examine the potential bias within the matching process and the creation of a weight to condition on sample selection. Below, I describe the variables available in HS&B that may be related to the matching process, voting, or the analyses I plan to use this dataset for.

Variables

Data Availability: The amount and quality of identifying data available to send to Catalist is skewed by survey participation. I created indicators of *midlife follow-up disposition* (participated in survey, refused to participate, unavailable, deceased, incarcerated, possibly found, and unlocatable), *total number of waves participated in*, and *whether they were unlocatable, refused, or unavailable in any of the earlier survey years*. In addition, I consider factors related to criminal justice contact, including base year survey reports of *getting in trouble with the law* and *being disciplined in school*, and residential mobility, including *whether the individual moved* (from the 1984 survey).

Political Engagement: I use self-reported indicators from earlier survey years (1984, 1986, 1992) of political engagement, including whether they reported *registering* or *voting* in any survey round. I also condition on self-reported *political ideology* from the base year survey (no party affiliation, conservative, moderate, liberal, or radical).

Education: Given the well-documented link between educational attainment and voting, I also consider *educational attainment*, as indicated by self-reports from the early survey years and transcript reports of postsecondary attainment. I also include a flag for *high school noncompletion* for members of the sophomore cohort who left school before their senior year of

high school. In addition, I condition on high school educational experiences that are related to selection into college, have theoretical connections to voting, and are of interest for my study. All of these variables were taken from the senior year survey for both cohorts (1980 for the senior cohort, 1982 for the sophomore cohort). They include *course-taking* (highest math course taken and high school program), *skills* (locus of control, math test scores, verbal test scores, and grades), and *leadership* (being a club leader).

Background: Social status is an important factor to consider in studies of sample selection and in voting, yet voting records often do not contain information about the family background. I include indicators of *parents' highest level of education* and *family income* as reported by students in the base year survey. I also examine *race*, *gender*, and *age*.

One factor that could introduce bias into my sample is marital status, particularly for women, because of the possibility of name changes across the life course. I consider any reports of individual's *marital status*, including whether they were never married, ever reported being married, or ever reporting being divorced. I also examine the interaction between marital status and gender to further investigate the possibility of name changes biasing my matches.

Analysis

My analysis of bias within Catalist matches proceeds in three steps. First, I examine the distribution of each of the above variables of interest across the full original sample, the matched sample, and the unmatched sample for the sophomore and senior cohorts of HS&B combined (Chapter 5), the sophomore cohort only (Chapter 3) and the sophomore cohort excluding high school noncompleters (Chapter 4). Next, I run a series of logistic regression analyses predicting being matched and examine the fit statistics to determine the best prediction model. For variables

with missing data, I keep indicators of nonresponse because both survey nonresponse and item nonresponse could be related to the data available for matching and the likelihood of being in the Catalist sample. Last, I create a weight to condition on selection into the different analytic samples, using the inverse of the predicted probability of being matched from the prediction equation above multiplied by the original panel weight from the survey. I evaluate the weight and whether it corrects for any bias I observe in the matched samples.

Table 2.2: Descriptive statistics of the combined sample of sophomore and senior cohort members and whether they were matched in Catalist.

	Full Sample		Unmatched Sample		Matched Sample			Weighted Matched Sample	
Cohort	N=26,820		N=8,320		N=18,500		Sig.	N=18,500	
Sophomore	55.40%		64.10%		51.60%			55.40%	
Senior	44.60%		35.90%		48.40%		***	44.60%	
Demographics									
Sex									
Female	50.60%		58.60%		47.10%		***	51.20%	
Male	49.40%		41.40%		52.90%			48.80%	
Race									
White	72.30%		66.60%		74.90%			72.50%	
Black	11.60%		12.30%		11.30%		***	11.80%	
Hispanic	10.90%		12.70%		10.10%		***	11.00%	
Asian	1.30%		1.50%		1.30%		*	1.40%	
American Indian	1.00%		1.60%		0.80%		***	1.10%	
Other	2.80%		5.30%		1.70%		***	2.30%	
Parents' Education									
Less than High School	12.20%		13.90%		11.40%			12.20%	
High School	31.40%		30.50%		31.80%		***	31.60%	
Some College	27.00%		25.80%		27.50%		***	27.30%	
Bachelor's Plus	23.20%		20.10%		24.60%		***	23.30%	
Missing	6.30%		9.70%		4.70%		***	5.70%	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Family Income	21405.29	10445.56	20700.47	10232.35	21716.58	10523.6	***	21368.77	10407.96
Age	16.43	1.05	16.32	1.01	16.48	1.06	***	16.43	1.05

Table 2.2 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
Marital Status									
Never Married	48.90%		45.60%		50.40%			49.30%	
Ever Married	41.40%		38.80%		42.60%			41.70%	
Ever Divorced	6.80%		9.60%		5.60%		***	6.60%	
Missing	2.80%		5.90%		1.40%		***	2.40%	
Marital Status and Sex									
Not Married - Female	21.30%		23.10%		20.40%			21.80%	
Not Married - Male	27.70%		22.50%		30.00%		***	27.50%	
Married - Female	24.00%		26.10%		23.00%			24.30%	
Married - Male	17.50%		12.70%		19.60%		***	17.40%	
Divorced - Female	4.30%		6.80%		3.20%		***	4.10%	
Divorced - Male	2.60%		2.90%		2.40%			2.50%	
Missing	2.80%		5.90%		1.40%		***	2.40%	
Skills Senior Year	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Locus of Control	0.03	0.91	-0.02	0.91	0.05	0.91	***	0.03	0.91
Math Test Score	19.54	6.60	18.54	6.33	19.99	6.66	***	19.54	6.61
Verbal Test Score	22.97	7.74	21.83	7.50	23.47	7.79	***	22.96	7.75
GPA	2.84	0.66	2.81	0.64	2.86	0.66	***	2.84	0.66
Track Senior Year									
General	29.50%		28.90%		29.70%			29.60%	
College Prep	31.50%		26.00%		33.90%		***	31.70%	
Vocational	21.40%		21.60%		21.30%			21.80%	
Missing	17.70%		23.50%		15.10%		***	16.90%	
Math Course-taking									
Listed None	15.60%		16.70%		15.10%			15.70%	
Algebra 1	14.70%		15.20%		14.40%			14.90%	
Geometry	10.40%		9.60%		10.80%		**	10.50%	

Table 2.2 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig	Weighted Matched Sample
Algebra 2	20.00%	17.80%	21.00%	***	20.30%
Trigonometry	14.50%	11.80%	15.70%	***	14.50%
Calculus	6.90%	5.00%	7.80%	***	6.90%
Missing	17.90%	23.90%	15.20%	***	17.20%
Political Party					
None/Don't Know	33.60%	34.20%	33.30%		33.80%
Conservative	6.30%	5.80%	6.50%		6.30%
Moderate	23.30%	20.40%	24.70%	***	23.40%
Liberal	11.40%	10.50%	11.80%	*	11.70%
Radical	3.80%	3.50%	3.90%		3.80%
Missing	21.70%	25.70%	19.90%	***	21.10%
Leader Senior Year					
No	42.40%	40.10%	43.50%		42.80%
Yes	35.80%	31.70%	37.60%	*	36.20%
Missing	21.70%	28.20%	18.90%	***	21.10%
Discipline Senior Year					
No	68.80%	62.40%	71.70%		69.60%
Yes	10.90%	11.30%	10.70%	**	10.90%
Missing	20.30%	26.30%	17.60%	***	19.50%
Trouble with Law Senior Year					
No	80.80%	77.20%	82.40%		81.50%
Yes	3.80%	4.00%	3.70%		3.70%
Missing	15.40%	18.90%	13.90%	***	14.80%
Left High School Early					
No	92.50%	88.00%	94.50%	***	92.60%
Yes	7.50%	12.00%	5.50%		7.40%

Table 2.2 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig.	Weighted Matched Sample
Reported Moving in Survey					
No	33.90%	32.00%	34.70%		34.20%
Yes	52.70%	48.80%	54.50%		52.90%
Missing	13.40%	19.30%	10.80%	***	12.90%
Highest Degree Earned					
High School or below	57.00%	58.70%	56.30%		57.10%
Some College	18.70%	18.40%	18.80%		19.00%
Bachelor's Degree	18.80%	14.60%	20.70%	***	18.90%
Grad/Professional	2.30%	1.70%	2.60%	***	2.40%
Missing	3.10%	6.60%	1.60%	***	2.70%
Civic Participation in Early Adulthood					
Didn't Report Voting	34.00%	39.00%	31.70%		33.90%
Reported Voting	62.70%	54.10%	66.50%	***	63.20%
Missing	3.40%	6.90%	1.80%	***	2.90%
Didn't Report Registering	19.20%	22.40%	17.80%		19.20%
Reported Registering	77.50%	70.80%	80.40%	***	77.90%
Missing	3.30%	6.70%	1.80%	***	2.90%
Survey Participation					
Midlife Disposition					
Participated in Survey	59.30%	40.50%	67.60%		59.70%
Refusal	6.70%	7.40%	6.40%	***	6.70%
Unavailable	5.60%	6.50%	5.20%	***	5.60%
Deceased/Terminally Ill	4.80%	11.60%	1.90%	***	4.80%
Incarcerated	0.20%	0.50%	0.00%	***	0.20%
Possibly Found	17.90%	23.20%	15.60%	***	17.80%
Unlocatable	5.40%	10.10%	3.40%	***	5.20%

Table 2.2 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Waves Participated In	3.57	0.87	3.40	1.06	3.65	0.75	***	3.60	0.83
Unlocatable Ever									
No	91.60%		86.90%		93.70%			92.10%	
Yes	8.40%		13.10%		6.30%		***	7.90%	
Refused Ever									
No	94.30%		93.40%		94.70%			94.40%	
Yes	5.70%		6.60%		5.30%		**	5.60%	
Unavailable Ever									
No	93.80%		92.60%		94.30%			93.90%	
Yes	6.20%		7.40%		5.70%		***	6.10%	

Note: * p<.05, **p<.01, and *** p<.001 signify significant differences between the matched and unmatched samples.

Results

Table 2.2 displays the distribution of survey participation, early political engagement, education, and background for the original sample, the unmatched sample, and the matched sample among the full HS&B sample. Appendix Tables A.1, A.2, and A.3 display the same information for the sophomore cohort, sophomore cohort excluding high school noncompleters, and the senior cohort, respectively. I focus on the full sample of both sophomore and seniors, given that the patterns I observe are similar across each HS&B sample. There does appear to be bias in the matched sample across each of the groups of indicators I examine. The largest gap between the original sample and the matched sample appears to be among those who participated in the midlife follow-up survey; about 68% of those who were matched participated in the survey, compared with only 40% of those who were not matched. In addition, those who reported registering to vote or voting in the early surveys were more likely to be matched than those who did not report early political engagement. As expected, measures of education are also related to being matched, but the gaps are less stark than for survey participation or early voting.

In addition, the distribution of race and parents' education are different between the unmatched and matched samples, but the gaps are smaller than for the other factors I consider. While being in trouble with the law does not differ across samples, being disciplined in school or incarcerated does. As expected, there is bias in my matched sample by gender and marital status; almost 60% of the unmatched sample is comprised of women. Here I find differences between the sophomore and senior cohorts of HS&B, shown in Appendix Tables A.1 and A.3. In general, those who ever reported being married are more represented in the matched sample. However, for the sophomore cohort, married women are underrepresented in the matched sample and

married men are overrepresented. In the senior sample, there is less of a difference between men and women who were married.

In all, these results suggest that analyses using the matched sample will be biased according to data availability, early political engagement, education, and background. For the next step in the analysis, I performed a series of logistic regressions to determine the best equation to use as part of the weighting procedure. In addition to the variables displayed in the descriptive tables, I examined whether conditioning on the school sample type, state of the original school, state found in midlife, school census region, and an indicator of voter turnout in the county of residence in 1980 should be included. The final model, in Table 2.3, includes all of the indicators in Table 2.2, along with both high school state and midlife state, school sample type, and an interaction between marital status and gender. Given the differences in the patterns between the sophomore and senior cohorts, I estimate matching separately by cohort. Table 2.3 displays similar gaps as those found in Table 2.2; participating in the midlife survey and reporting voting significantly predict being matched in Catalist. In addition, the direction of the interaction between marital status and gender switches between the sophomore (first two columns) and senior (third column) cohorts; married men were more likely to be matched among sophomores and less likely to be matched among seniors.

Table 2.3: Predicting being matched into Catalist with different samples, displaying odds ratios.

	Sophomores	Sophomores (excluding noncompleters)	Seniors
Midlife Survey Disposition [ref. Participant]			
Refusal	0.452*** (0.0455)	0.456*** (0.0471)	0.552*** (0.0711)
Unavailable	0.433*** (0.0428)	0.427*** (0.0455)	0.703* (0.117)
Deceased/Terminally Ill	0.112*** (0.0157)	0.115*** (0.0184)	0.057*** (0.00850)
Incarcerated	0.0656*** (0.0305)	0.0462*** (0.0327)	0.035*** (0.0191)
Possibly Found	0.337*** (0.0226)	0.345*** (0.0247)	0.518*** (0.0453)
Unlocatable	0.288*** (0.0361)	0.300*** (0.0427)	0.170*** (0.0231)
Waves of Participation	0.986 (0.0849)	0.988 (0.0916)	1.121 (0.135)
Unlocatable Early Surveys [ref. never unlocatable]	0.870 (0.118)	0.964 (0.152)	0.830 (0.132)
Refused Early Surveys [ref. never refused]	1.214 (0.175)	1.347~ (0.216)	1.183 (0.204)
Unavailable Early Surveys [ref. never unavailable]	1.024 (0.157)	1.160 (0.197)	1.161 (0.179)
Reported Moving Early Survey	0.964 (0.0522)	0.957 (0.0550)	1.039 (0.0814)
Missing	0.797	0.707*	0.962
Self-reported Voting	(0.113)	(0.106)	(0.190)
Reported Registering	1.138 (0.0940)	1.151 (0.105)	1.020 (0.119)
Missing	2.321 (1.950)	1.642 (1.553)	2.530 (2.287)
Reported Voting	1.190* (0.0827)	1.134~ (0.0839)	1.247* (0.129)
Missing	0.659	1.357	0.348
Degree Attainment [ref. high school]	(0.474)	(1.184)	(0.294)
Some College	0.971 (0.0674)	0.992 (0.0742)	0.981 (0.0843)

Table 2.3 [cont.]

	Sophomores	Sophomores (excluding noncompleters)	Seniors
Bachelors	0.992 (0.0838)	1.025 (0.0875)	0.905 (0.103)
Graduate	0.919 (0.141)	0.952 (0.149)	2.183 (1.293)
Missing	0.528 (0.250)	1.383 (1.099)	0.745 (0.467)
Disciplined in School	0.919 (0.0781)	0.909 (0.0772)	0.853 (0.0860)
Missing	1.106 (0.176)	1.024 (0.178)	1.667~ (0.477)
Trouble with Law	0.992 (0.132)	1.046 (0.164)	0.776 (0.129)
Missing	0.939 (0.180)	1.171 (0.237)	0.966 (0.279)
Club Leader	0.918 (0.0564)	0.912 (0.0562)	1.023 (0.0761)
Missing	0.834 (0.0970)	0.832 (0.0965)	1.042 (0.162)
Family Income	1.000 (0.000)	1.000 (0.000)	1.000 (0.000)
Missing	0.979 (0.121)	0.835 (0.149)	0.938 (0.123)
Parents' Education High School	1.024 (0.0854)	1.032 (0.0991)	1.095 (0.125)
Some College	1.009 (0.0922)	1.002 (0.0999)	0.994 (0.117)
Bachelors	0.932 (0.0883)	0.924 (0.0966)	1.052 (0.141)
Missing	0.901 (0.123)	0.961 (0.145)	1.186 (0.249)
Race	1.168~ (0.103)	1.181~ (0.112)	1.092 (0.0981)
Black	0.949 (0.0789)	0.966 (0.0858)	0.908 (0.0962)
Hispanic	0.745~ (0.131)	0.774 (0.142)	0.865 (0.205)
Asian	0.610* (0.125)	0.752 (0.167)	0.629* (0.147)
American Indian			

Table 2.3 [cont.]

	Sophomores	Sophomores (excluding noncompleters)	Seniors
Other	0.898 (0.219)	0.907 (0.253)	0.649 (0.193)
Male	1.796*** (0.157)	1.909*** (0.176)	2.347*** (0.211)
Age	0.958 (0.0411)	0.956 (0.0482)	1.092 (0.0618)
Missing	1.054 (0.147)	0.968 (0.151)	0.887 (0.217)
Married	0.848* (0.0632)	0.893 (0.0710)	1.523*** (0.154)
Divorced	0.619*** (0.0722)	0.649** (0.0856)	0.973 (0.236)
Missing	1.260	0.230	1.017
Political Affiliation	(0.634)	(0.236)	(0.683)
Conservative	1.005 (0.109)	0.993 (0.116)	0.837 (0.113)
Moderate	1.007 (0.0695)	1.003 (0.0744)	1.058 (0.0919)
Liberal	0.897 (0.0766)	0.869 (0.0779)	1.010 (0.114)
Radical	1.098 (0.159)	1.122 (0.183)	0.999 (0.163)
Missing	0.987	1.033	1.190
Track	(0.117)	(0.135)	(0.231)
College Prep	1.076 (0.0822)	1.071 (0.0819)	1.050 (0.100)
Vocational	1.018 (0.0757)	1.024 (0.0759)	0.988 (0.0880)
Missing	0.871	0.841	0.882
Math Course-taking	(0.238)	(0.228)	(0.212)
Algebra 1	0.989 (0.0940)	0.992 (0.0947)	1.010 (0.114)
Geometry	0.922 (0.101)	0.938 (0.103)	1.055 (0.138)
Algebra 2	0.958 (0.0942)	0.959 (0.0951)	1.153 (0.137)
Trig	0.901 (0.109)	0.902 (0.110)	0.950 (0.142)

Table 2.3 [cont.]

	Sophomores	Sophomores (excluding noncompleters)	Seniors
Calculus	1.018 (0.151)	1.020 (0.152)	1.127 (0.208)
Missing	1.118 (0.269)	1.101 (0.259)	0.874 (0.275)
Grades	0.953 (0.0505)	0.947 (0.0508)	1.001 (0.0624)
Missing	1.144 (0.342)	1.135 (0.337)	1.150 (0.359)
Locus	1.000 (0.0309)	1.017 (0.0339)	0.923* (0.0375)
Missing	1.060 (0.216)	0.927 (0.211)	0.723 (0.234)
Math test scores	1.014* (0.00576)	1.013* (0.00627)	1.000 (0.00958)
Missing	0.705* (0.106)	0.772 (0.134)	1.288 (0.299)
Verbal Test Scores	1.004 (0.00513)	1.006 (0.00558)	1.005 (0.00631)
Missing	1.112 (0.190)	1.030 (0.203)	0.829 (0.202)
Interaction			
Married x Male	1.567*** (0.167)	1.526*** (0.178)	0.619** (0.0919)
Divorced x Male	1.191 (0.211)	1.118 (0.225)	0.944 (0.415)
Missing x Male	0.562 (0.237)	0.851 (0.366)	1.044 (0.405)
High School Noncompleter	0.823 (0.161)		
Constant	2.439 (1.971)	2.849 (2.697)	0.261 (0.309)
Observations	14,820	12,240	11,990
BIC	4.240e+09	3.630e+09	2.87e+09
ll	-2.120e+09	-1.820e+09	-1.44e+09
r2	0.138	0.127	0.154

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, ~ p<0.1

Using these models, I created weights to condition on selection into the Catalist samples. First, I estimated the predicted probability of being matched into Catalist for each sample. As a check, I examined how many people are correctly estimated to be matched from this probability by creating a dichotomous indicator of matching: predicted not to be matched (probability of 0.00 to 0.50) and predicted to be matched (probability of 0.51 to 1.00). Across each sample, about 90% of those who were predicted to be matched were in the matched sample. Next, I took the inverse of the predicted probability and multiplied it by the original panel weight to create the Catalist selection weight and checked how much this weight corrects for the bias I observe.

The last column of Table 2.1 displays the voting rates for the combined sophomore and senior matched samples using this Catalist weight. The voting rates among the matched sample are now within 1-3% of the census estimates. The last column of Table 2.2 displays the descriptive statistics for the combined sophomore and senior matched sample, weighted to examine how much the weight corrects for bias in data availability, early political engagement, education, and background. The gaps I previously observed are almost completely erased with the weight. For example, the matched sample previously overrepresented those who participated in the midlife survey, with almost 70% of those who were matched participating in the midlife survey. With the Catalist weight, only 59.7% of the matched sample participated in the midlife survey, which is almost identical to the percent in the original sample (59.3%). Similarly, about 66% of those who were matched reported early voting, compared with only 64% in the original sample. The corrected percent of the match sample that reported voting is 63%. Thus, the multifaceted bias within the matched sample that I reported is almost entirely accounted for by

the constructed sample selection weight. Similar patterns can be observed in Appendices A.1, A.2, and A.3.

Conclusion

Increased access to data can mean a greater ability to perform analyses of important topics that are historically difficult to measure, include items that have socially desirable answers on surveys, like voting. For this project, my colleagues matched a nationally representative sample of high school students to their voting records maintained by Catalist, a commercial data provider. Given the different purposes of the samples, the data available, and the data matching process, we were concerned about the possibility that the matched sample would be biased by data availability, early political engagement, education and background, causing analyses using the matched sample to provide invalid estimates of the predictors of voting. Although I did indeed find that the matching process produces a sample biased along each of these dimensions, I was able to construct a weight that accounts for nearly all of the observed bias. This analysis gives me confidence that the results in the following chapters are representative of sophomore and seniors in high school in 1980 along the dimensions that I examined. To address any lingering concerns regarding the sample selection I perform robustness checks on all analyses.

Chapter 3: Establishing the Effect of College on Voting Across the Life Course

The link between educational attainment and voting has been well documented; those with higher levels of education are more likely to vote. There are three main explanations for this link. First, something that happens during schooling can improve voting, including learning skills that assist in making electoral decisions, gaining access to social networks of more civically engaged individuals, and being socialized to believe that voting is important to sustain a democracy. Second, schooling and higher-level degrees place students in more advantaged social positions, increasing their access to resources that make voting less costly and linking them to more advantaged, civically engaged people. The last explanation is rooted in selection; those who get higher levels of schooling come from more advantaged backgrounds, are more interested in politics, and have higher skills which both make them more inclined to vote and to be successful within education.

The selection aspect of this relationship has been given a lot of empirical attention with researchers using casual and pseudo-causal techniques to estimate the relationship between education and voting. This literature, mainly rooted in political science and economics, uses twin studies, changes in policy, instrumental variables, and experiments to handle the possible endogeneity rooted in selection into higher education and voting. Some researchers suggest that there is no causal relationship between education and voting because factors that predict voting, such as personality and family background, also predict success within educational institutions (Cassel and Lo 1997; Galston 2001; Hauser 2000; Luskin 1990), while others find that, even when using causal estimation, reaching higher levels of education can increase voting.

However, there are a few limitations in the current literature on the link between education and voting that have important implications for understanding this relationship. First, many studies use self-reported measures of voting to estimate the effects of education on voting. As discussed in Chapter 2, these self-reported indicators may be over-reported because of social desirability bias. Thus, these studies may have found a causal effect of education on *reporting voting*, but not on voting itself. Second, most research in this area focuses on voting in early adulthood. As discussed in Chapter 1, when in the life course one measures voting is important because of differences in the levels of stratification involved; voting in early adulthood is an uncommon event as individuals transition to their new adult roles within education and work whereas voting in midlife is common when most individuals are settled into their adulthood communities. Estimating the long-term effects of education on voting in midlife thus may capture different types of voters and of inequality in the electorate. Lastly, the measures of education are limited to years of schooling in many of the studies using instruments to account for endogeneity. Setting the baseline causal estimates for one year of education on voting is an important first step, however, what one additional year of education means varies, both in terms of the educational context and whether the additional year leads to a degree.

One of the most highly cited studies on the causal link between education and voting, Dee (2003, 2004), uses an instrumental variable approach to examine whether going to college affects political participation in early adulthood, including registering to vote, voting, and volunteering. The author instruments college-going through the geographic availability of colleges, suggesting that individuals that live near more colleges will have lower costs associated with going to college, but geographic availability of colleges is unrelated to outcomes, such as

labor market outcomes and voting (Card 1995; Currie and Moretti 2003; Kling 2001). The instrument is constructed for the geographic availability of 2-year colleges because they often have minimal costs and admissions requirements, unlike 4-year colleges. Thus, the independent variable of interest is going to any college, combining 2-year and 4-year college enrollment. Dee finds that entering college within two years of high school increases the probability of voting in presidential and off-year elections by about 18% using bivariate probit estimates and two instruments, the number of 2-year colleges in the high school county and the distance to the nearest 2-year college from high school. He does not find a similar effect on volunteering. These findings have been widely cited as proof of the causal effect of education on voting.

Building off this study, I examine the possible long-term effect of college entry, completion and context on voting in midlife. I start with the same dataset used by Dee (2003, 2004), the High School and Beyond dataset, which my colleagues then linked to individuals' voting records around age 50 obtained from Catalist. I examine detailed educational attainment, including the level of the degree (Associate's, Bachelor's, Graduate) and the institutional selectivity. The original study does find a strong, causal relationship between going to any level of college and self-reports of voting in early adulthood. My study expands these results by examining whether this effect extends into midlife and differs by how far students get in college and the type of college they receive degrees from. In addition, I examine the mediating role of self-reported voting in early adulthood to elucidate the link between education and voting early or later in the life course. Next, I address differences in the link between education and voting across the life course and why the level and type of institution where an individual attends college may be important to consider.

Postsecondary Experiences and Voting Across the Life Course

When examining the link between education and voting, how researchers define education often varies. This disparity in the operationalization of a key variable of interest may have a role in explaining the inconsistent findings on the causal effect of education on voting. One common way to test the causal effects of education on outcomes is to estimate the effect of laws that increase educational attainment, such as child labor laws or compulsory schooling laws. However, these often only capture small changes in years of schooling, between 1 and 2 years, which may not be enough to examine the effects of education on voting. For example, Pelkonen (2012) finds no evidence of a causal effect on voting of increased education due to compulsory schooling laws in Norway. However, using a similar instrument related to variation in compulsory schooling in the U.S., Milligan and colleagues (2004) do find that those who graduated from high school have higher voting rates. Using the rise in college-going related to the Vietnam draft Berinsky and Lenz (2010) do not find a causal link between attending any college and voting. However, other research using draft lottery numbers has found that those with high draft numbers have anti-government sentiments (Erikson and Stoker 2011). Another strategy used by Tenn (2007), matches individuals in the Current Population Survey who are the same age as those who will have one more year of education and be the same age the following year to examine voter turnout and finds no effect of a one-year increase in schooling on changes in an individual's voting. These mixed findings and strategies suggest that differences in how education is operationalized, as getting a degree versus having more years of schooling, may matter in estimating the casual effect of education on voting.

Indeed, research has found heterogeneity within the returns to education in relation to the level and type of education. For example, Hoskins and Janmaat (2016) using data from England find that students with lower level degrees, especially with a vocational focus, are less likely to vote in early adulthood than those with an academic, 4-year credential. They suggest that the type of instruction that occurs in vocational courses, which are often top-down lessons focused on narrow directions, is less conducive to political engagement than academic courses, which generally allow for more deliberation, critical thinking, and nuanced discussions of topics. In a similar vein, Evans and colleagues (2019) examine 4-year institutions' focus on vocational versus civic outcomes and find that institutions that have more resources, time, and funding available for community engagement do in fact have more engaged students. Other research has found that the quality of college education, including the school rank and the number of credits in social science, does have a significant, positive association with voting in early adulthood. This research strand focuses on how the process of college education may support greater political engagement, in opposition to a focus on additional years of schooling. The skills students learn, the interactions they have with teachers and their peers, and their civic engagement outside of the classroom may all contribute to greater voting later in life. Building off this research, I investigate how the level of degree and type of institution may relate to voting in midlife.

Level of Degree Completion

As students progress through higher levels of education and receive higher level degrees, they are exposed to different types of learning environments, knowledge, skills, and opportunities in the labor market that all may be related to voting. In the early years of college,

students are mainly taught in lecture courses with top-down teaching strategies; the professor tells students information that they are expected to understand, interpret, and remember in assessments. As students reach more specialized courses in their major, they may be in smaller discussion-based courses that engage students in their own thoughts, experiences, and knowledge in a more equitable learning environment. This type of learning extends into the early years of graduate school, while students learn to apply concepts they have learned in new situations. In advanced degree programs, students become generators of knowledge and are expected to make unique contributions to their field. In each of these steps in higher education, the traditional teacher-student relationship—the top-down model of lectures—becomes more egalitarian and students' voices become an even more integral part of their education. Experiences that give students a voice, and empower them to use that voice, are supportive of voting because they mimic what voting does; it is an opportunity for individuals to tell government what to do. Through each level of education, students may become more empowered as their voices are more respected and valued in the classroom, potentially supporting political involvement later in life.

Although some research suggests that having any college experiences can predict voting, completing a degree may even further support political engagement. Receiving a degree signals success within an institutional structure and may indicate increased knowledge and skills. The credential itself may be the integral push into a politically engaged life, helping individuals get jobs that place them into more advantaged positions. In this regard, the level of degree is important for which level of social status one can enter. An associate's degree can help individuals get a steady job, but may not give them access to managerial or professional

occupations with more autonomy and higher benefits and salaries. Bachelor's degrees are required for many of these professional occupations, which can support greater political engagement through better resources and social networks with people that are involved in the political process. However, graduate degrees signal expertise and higher-levels of status that may support even greater political involvement through beliefs that your opinion is important and you can help lead your community. Research on labor market and health returns to education has repeatedly found that returns are higher with higher-level degrees (Day and Newburger 2002), suggesting that there is a hierarchy within educational attainment that can have important implications for one's future life. I examine whether college entry predicts voting in midlife only through degree attainment, and which levels of attainment are related to higher rates of voting.

Institutional Context

The type of education one receives, the status attached to the degree, and the social networks one has access to are all shaped by the institutional context of postsecondary education as well. Although more mixed, some research has found evidence that students who graduate from selective colleges have higher returns to their labor market and health outcomes than those who do not attend selective colleges (Dale and Krueger 2002). One study found that selective college attendance, as indicated by the institutional rank and the average admissions test scores, supports greater voting in early adulthood than attending less selective schools (Nie and Hillygus 2001). The authors even suggest that the gap they find may become exacerbated later in life; "...as [college graduates from elite colleges] age, as they settle into their communities, and some decide to get involved in politics themselves, perhaps the importance of an elite education and the social networks it creates will be magnified" (pg. 43). Part of the link between education and

voting is through how one is treated within institutions, as a person of value who plays an active role in their education and has a voice in politics or a disciplined person who should passively accept the knowledge dictated to them and does not have a voice in politics. Selective college attendance may shape one's feelings of political efficacy both through how they are treated by their professors and peers within the institution and how they perceive of themselves in comparison to those outside of the institution. A sense of honor and entitlement that comes with a selective college acceptance may signal to individuals that they are better than others and that their voices and opinions are important, inside and outside the political realm. I examine whether bachelor's and graduate degrees from selective colleges are even more strongly associated with voting in midlife.

Present Study

In this chapter, I extend Dee's (2003, 2004) analysis of the effect of college entry on self-reported voting in early adulthood in three critical ways. First, I examine how the effect may differ by age using administrative records of voting later in the life course. Second, I investigate postsecondary experiences more in depth, including different level of degree attainment and institutional selectivity. Lastly, I examine the mediating role of self-reported voting in early adulthood to understand the links between education and early and later voting.

Data and Methods

I start my analysis by attempting to directly replicate the findings from Dee (2003, 2004). The sample is drawn from the sophomore cohort of HS&B and includes those who participated in the second (1984) and fourth (1992) follow-up surveys with nonmissing measures for the main independent variable of interest (postsecondary entry), the two instrumental variables

(geographic availability of 2-year college), and the dependent variable for each analysis, giving a final sample size 11,440 to predict voting in the past year (1991) and 11,380 to predict voting in the 1988 presidential election.

The second part of the analysis predicts voting in midlife by connecting the HS&B sample to their voting records in Catalist. This matching process is described in Chapter 2. Of the about 11,500 individuals in the original sample (before excluding those missing the dependent variable), I was able to match about 7,790 to their voting records. In the analytic plan, I discuss implications of sample selection for this analysis and robustness checks I performed to account for possible bias in the analytic sample.

Measures

College Entry: *College entry* indicates whether the respondent reported entering a junior college, community college, or a 4-year college or university during the 1984 survey, two years after high school graduation when respondents were about 20 years old.²

Educational Attainment: To add more nuance to the measures of education used in the original paper, I construct a variable that combines degree attainment and institutional selectivity. This measure was constructed both from survey and postsecondary transcript reports of degree attainment. It indicates whether an individual's highest level of attainment is a high school diploma, an Associate's degree, a Bachelor's degree from a nonselective college, a bachelor's degree from a selective college, a graduate degree from a nonselective college, or a graduate degree from a selective college.

² This measure includes about 10 more individuals with nonmissing than what is published in Dee (2003,2004), which, after discussions with the author and checking technical reports, may be due to updating and cleaning of the HS&B data over the years.

Voting: In the early adulthood analysis, voting is measured by self-reports from the 1992 survey, when respondents were about 28 years old. I construct two indicators capturing different levels of voting. *Voting within the past year* is an indicator of voting in an off-cycle election, given that no presidential elections occurred in the year prior to the survey, which often has low voter turnout. *Voting in the 1988 presidential election* indicates voting during an election with a higher turnout rate. In the midlife analysis, voting comes from records in Catalist. I estimate whether the individual voted in the *2012 presidential election*, the *2014 midterm election*, and the *2016 presidential election*.

Instrumental Variables: There are two instrumental variables in the analysis linked to the location of HS&B sample members' schools: *miles to the nearest 2-year college* and *number of 2-year colleges in the county*. The first comes from school reports from the base year survey of HS&B. The second is constructed from the 1983-1984 Higher Education General Information Survey (HEGIS) and linked to the counties in HS&B. The measure is the count of 2-year colleges (excluding central offices, for-profit institutions, and institutions that require a postsecondary degree before entry). Unlike the other variables in the analysis, I was unable to construct this measure to match the exact distribution of that published in Dee (2003). After discussions with the author and reading the HEGIS technical report, I ascertained that there are two main reasons for this inconsistency. First, although I use the same data source for the HEGIS data (ICPSR), the technical report suggests that the data has been updated and cleaned over the years which may have resulted in schools being added, taken out, or having their information changed. Second, we do not have the same indicators for school county. Dee (2003, 2004) did not have the geographic locations of schools within HS&B, but rather attempted to match

counties through constructed variables on labor force indicators (see Dee 2004 for more details). I do have the geographic indicators from HS&B (only available in the restricted data), but only at the zip code level, requiring me to match zip codes to counties. In the majority of cases, this is an easy task. However, some zip codes match to multiple counties. If I perform the match through choosing the most populous county, the mean of the variable is below Dee (2003). If I take the average number of community colleges across all of the matched counties, the mean of the variable is slightly above that in Dee (2003). I perform all of my analyses using both possible indicators, but display results using the average number of 2-year colleges of all of the possible zip code-county matches.

Background: There are a number of background variables that may both be related to education and voting, including *race/ethnicity, gender, age, parents' education, family structure, family income, religion, and test score quartiles*.³

School-Level Indicators: The analysis also consider possible differences between schools, by accounting for *school urbanicity, census region, and miles to the nearest 4-year college*.

County-Level Indicators: To condition on possible differences in the context for voting across counties, the analysis includes controls for the composition of counties in 1980: *presidential turnout, population aged 18 to 24, and percent of 25 year olds with a high school degree*. I use the same technique for matching zip code to county as described above.

³ Dee (2004) does not describe how test scores are coded. As the only continuous variable with missing data, I was unsure how to handle the missing. In conversations with the author, he said he may have used mean imputation and included a flag for missing. I tried this method, as well as splitting the test scores into quartiles and keeping the missing in a separate category. This second method yields results closer to those in the original paper, so I keep this method throughout. However, all results are robust to alternative specifications.

State-Level Indicators: Given differences in voting laws across states, the analysis also considers *whether the state allowed mail-in voter registration* and the *number of years the state has had “motor-voter” laws in place* both derived from Knack (1995).

Analytic Plan

This analysis proceeds in four steps. First, I replicate the findings from Dee (2003,2004). I start by using single-equation probits in nested models to establish the relationship between college entry and voting. The nesting considers whether individual, school-level, state-level, or census region controls explain the relationship between college entry and voting. Then, I estimate models with school fixed effects using OLS regression. Finally, I use bivariate probit estimates using the two instrumental variables. Throughout, I follow Dee (2003,2004)’s methodology, including coding any missing on independent variables as a separate category, not weighting, and using clustered standard errors at the school-level. The author notes that alternative instrumental variable strategies yield similar results, including 2SLS. I find similar consistency and chose to use the same strategy as that used in the original analysis.

Second, I perform the same analyses described above, but on the sample of individuals matched into Catalist and predicting voting in 2012, 2014, and 2016. Lastly, I extend the analysis by considering highest level of degree attainment and self-reported voting in early adulthood in separate models that add these variables to the fixed effects estimates of college entry on voting. All probit results are reported as average marginal effects (AMEs) to be able to compare the estimated effects across models, different types of elections, and different points in the life course.

As robustness checks, I performed the updated analyses with different methodologies to handle missing data and sample selection. First, I used multiple imputations to handle missing data. Then, I considered potential bias introduced by the match process into Catalist by using the constructed weight for Catalist sample selection (as described in Chapter 2). Throughout these checks estimates are similar, but I chose to stay consistent with Dee's methodology.

To further investigate sample selection bias, I use the Konfound command in Stata (Frank et al. 2013; Frank and Xu 2018). This method calculates what percentage of your sample would have to be replaced with cases with a null relationship to invalidate your inferences. Further, it estimates how sample selection may bias results by calculating what the hypothesized correlation between the main independent variable of interest (college-going) and the outcome (voting) in the unmatched portion of the sample would need to be to make the relationship no longer significant. I report the findings of both of these checks in the results section.

Results

Table 3.1 displays estimates of the effect of college entry on voting in early adulthood and midlife. The top half of the table replicates the findings by Dee (2003, 2004), showing that college entry has a strong, significant, positive relationship with self-reported voting in early adulthood. The estimated effect from the single-equation probits and the OLS regressions show that entering college increases voting in an off-cycle election by about 8 percentage points and in a presidential election by about 15 percentage points. These estimates are all within the standard error of Dee (2004)'s estimates. The bivariate probit estimates show a stronger effect, suggesting that selection into college does not drive the association between college entry and voting.

Rather, those who go to college have between 18 and 28 percentage point higher probability of

voting than those who do not go to college. My estimates do stray from those in Dee (2004) in the bivariate probit estimates of voting in the 1988 presidential election. Although using the same method for voting in an off-cycle election, which does match Dee's estimates, my estimates of voting in the presidential election were consistently higher than his across multiple model specifications. They are, however, closer to his estimates as reported in a working paper version of the study, Dee (2003), which displays a similar gap between voting in the off-cycle and presidential election. The only difference in methods that I could ascertain between the working paper and the published paper is the addition of the test scores as a control. If I exclude this variable, my estimates are within a standard error from those in the working paper (Dee 2003).

Table 3.1: Estimated effects of college entry on voting in early adulthood and midlife, replicating methods used by Dee (2003, 2004)

	Single-equation Probit					Bivariate Probit	Sample Size
	1	2	3	4	5		
Early Adulthood Voting							
Voted in last 12 months	0.0854*** (0.0107)	0.0852*** (0.0107)	0.0874*** (0.0107)	0.0849*** (0.0107)	0.0726*** (0.0111)	0.175*** (0.0185)	11,440
Voted in 1988 Presidential election	0.151*** (0.0113)	0.149*** (0.0113)	0.153*** (0.0112)	0.151*** (0.0112)	0.141*** (0.0111)	0.288*** (0.0709)	11,380
Midlife Voting							
Voted in 2016 Presidential election	0.107*** (0.0113)	0.107*** (0.0113)	0.109*** (0.0113)	0.112*** (0.0113)	0.103*** (0.0124)	0.200** (0.0763)	7,790
Voted in 2014 Midterm election	0.0911*** (0.0139)	0.0942*** (0.0138)	0.0990*** (0.0138)	0.102*** (0.0138)	0.0960*** (0.0140)	0.240*** (0.0402)	7,790
Voted in 2012 Presidential election	0.100*** (0.0119)	0.0998*** (0.0119)	0.102*** (0.0119)	0.103*** (0.0120)	0.0970*** (0.0127)	0.223** (0.0789)	7,790
School-level controls	no	yes	yes	yes	no	yes	
State/county-level controls	no	no	yes	yes	no	yes	
Census division dummies	no	no	yes	yes	no	yes	
School fixed effects	no	no	no	no	yes	no	

Note: All models include controls for gender, age, race/ethnicity, religion, family income, parental education, family composition, and test scores. Standard errors are clustered at the school-level. The two instrumental variables are miles to nearest 2-year college and number of 2-year colleges in the county. * p<.05, **p<.01, and *** p<.001

The second part of Table 3.1 displays the estimates of the effect of college entry on voting in two presidential elections and one midterm election during midlife. College entry during early adulthood is associated with about a 10 percentage point increase in the probability of voting in midlife. As with the estimates of voting in early adulthood, the bivariate probit estimates are higher and suggest that college entry is associated with about a 20 percentage point increase in the probability of voting in midlife. Unlike the results for early adulthood, the relationship is similar between voting in presidential and off-cycle elections. These results suggest that college entry remains a significant predictor of voting in midlife, with a similar magnitude as voting in early adulthood. In my robustness check for sample selection bias using the Konfound method, I estimate that about 80% of the sample would need to be replaced with cases with an effect size of zero to invalidate these findings. In addition, college-going would have to have a correlation with voting of $-.08$ in the unmatched portion of the sample to change the conclusions. These estimates, along with the robustness checks described in the methods section, give me confidence that my findings are not due to sample selection. Going to college within 2 years of high school increases the probability of voting in midlife substantially.

Next, I examine whether this estimated effect of college-going on voting in midlife operates through degree attainment. Table 3.2 adds educational attainment to the OLS, school fixed effects models from Table 3.1. Even with the addition of degree attainment, college entry remains significantly related to voting in midlife. However, the magnitude is about half the size of the relationship between college completion and voting in midlife. An Associate's degree increases the probability of voting in midlife by about 7 percentage points compared to those with only a high school diploma. Each level of educational attainment increases the marginal

effect of degree attainment, from a bachelor's degree from a nonselective college to a graduate degree from a selective college. Although the estimated effect of receiving a degree from a selective college is higher than from a nonselective college, the difference is not statistically significant. These findings suggest that any kind of college education and any level of college degree can improve one's midlife voting, but those with graduate-level degree benefit the most.

Table 3.2: Average marginal effects from probit regressions predicting midlife voting with degree attainment and early voting.

Election Year	2016		2014		2012	
	1	2	1	2	1	2
College Entry (1984)	0.0701***	0.0551***	0.0580***	0.0391**	0.0623***	0.0440**
[ref. no college entry]	(0.0134)	(0.0132)	(0.0151)	(0.0149)	(0.0136)	(0.0134)
Highest Degree Earned (1992)						
[ref. high school diploma]						
Associate's degree	0.0667***	0.0535***	0.0699***	0.0527***	0.0700***	0.0538***
	(0.0139)	(0.0138)	(0.0157)	(0.0155)	(0.0142)	(0.0140)
Bachelor's degree, nonselective school	0.0987***	0.0830***	0.109***	0.0886***	0.102***	0.0830***
	(0.0157)	(0.0156)	(0.0177)	(0.0175)	(0.0160)	(0.0158)
Bachelor's degree, selective school	0.114***	0.0900***	0.158***	0.127***	0.149***	0.120***
	(0.0269)	(0.0266)	(0.0303)	(0.0299)	(0.0274)	(0.0270)
Graduate degree, nonselective school	0.146***	0.120***	0.154***	0.118**	0.141***	0.108**
	(0.0328)	(0.0325)	(0.0370)	(0.0364)	(0.0335)	(0.0329)
Graduate degree, selective school	0.145***	0.130***	0.188***	0.169***	0.141***	0.123***
	(0.0331)	(0.0327)	(0.0373)	(0.0367)	(0.0338)	(0.0331)
Voted in 1991-1992		0.0457***		0.0844***		0.0631***
[ref. didn't vote]		(0.0117)		(0.0131)		(0.0119)
Missing		-0.0476		0.0976		-0.0313
		(0.0843)		(0.0947)		(0.0855)
Voted in 1988 election		0.121***		0.140***		0.145***
[ref. didn't vote]		(0.0119)		(0.0134)		(0.0121)
Missing		0.145*		0.130~		0.186**
		(0.0595)		(0.0668)		(0.0603)

All models include controls for gender, age, race/ethnicity, religion, family income, parental education, family composition, test scores, and school fixed effects. Standard errors are clustered at the school-level. *** p<0.001, ** p<0.01, and * p<0.05. N=7,790.

Finally, I examine the role of self-reported voting in early adulthood in the process. Introducing these indicators decreases the magnitude of college going and educational attainment by about 2 percentage points, but does not significantly mediate the association between education and voting in midlife. In fact, the association between early adulthood voting and voting in midlife is a similar magnitude for all elections as graduating from college with a bachelor's degree. Although early voting is important, and is associated with later voting, educational attainment still predicts voting in midlife when considering earlier political engagement.

Conclusion

Research has long noted the strong link between education and voting, but many nuances within this relationship have yet to be explored. In this paper, I replicated and extended a study that found causal estimates of college going and self-reported voting in early adulthood. I find that college going remains to have a strong, significant relationship with administrative reports of voting in midlife. In addition, I examined the role of educational attainment, considering both the level of degree and the institutional selectivity, and do find a gradient in the relationship. Individuals who attended college are more likely to voting in midlife, even when considering their educational attainment and voting in early adulthood. But, graduating from college, especially with a graduate-level degree, increases the probability of voting almost twice as much. These relationships remain for both presidential and midterm elections in midlife.

These findings feed into the debate on what about education supports voting. The causal estimates suggest that selection into college does not account for the link between education and voting. That college going predicts voting, even when conditioning on educational attainment,

suggests that something that happens during college education may be related to voting. The increased probability of voting for each additional level of education may also speak to the college process, as those with higher-level degrees have more years of education, but it also may be driven by processes after college that grant individuals access to higher status occupations, neighborhoods, and lifestyles that are associated with voting. Although out of the scope of this paper, I did examine two potential mechanisms, earnings and marital status in early adulthood, and, for the subsample that participated in the midlife survey, mean occupational wages and marital status in midlife. These factors do not mediate the association between education and voting in midlife. There are other possible mechanisms, but establishing that education can change people's politically engaged pathways is important to pinpoint where in the life course one can intervene to improve voting across the life course.

The remaining chapters in this dissertation focus on the process of education and what aspects of education are related to voting. I trace college-going decisions back to high school because adolescence is a critical period of developing one's sense of where they fit in the world. The skills and dispositions individuals learn during adolescence are linked to labor market, health, and civic outcomes later in life, and experiences inside and outside the classroom may additionally predict long-term voting. Students' positions in high schools and relationships with authority figures can impact future educational attainment, but may also place students on divergent politically engaged pathways across the life course.

Chapter 4: High School (Dis)Empowering Experiences and Voting in Midlife

Often institutions are organized top-down, directing individuals about what they can and should do, but voting is one of the few activities that grants individuals power from the ground up. Individuals who believe their voice matters and will be heard in the political world are more likely to vote, but how people develop their political empowerment is not well understood (Bourdieu 1984; Laurison 2015; Lerman and Weaver 2014). The development of this political habitus begins in the family, but experiences in education are highly related to voting across the life course and may feed into feelings of political empowerment (Hess and McAvoy 2014; McFarland and Thomas 2006; Nie et al. 1996; Smets and van Ham 2013). As individuals progress through education, they receive signals from their peers, teachers, and schools that shape their skills, dispositions, and access to power. During adolescence, as individuals approach voting eligible age, opportunities for empowerment, or disempowerment, inside schools may be particularly important in shaping one's political identity.

In this chapter, I examine the role of high schools in empowering students to be politically engaged across the life course. Students enter high school with certain habits, skills, and dispositions engrained in them through their prior schooling and family upbringing. Students' background informs the opportunities they have inside and outside of the classroom, but high school experiences can also shape students' identities and feelings of empowerment as they enter adulthood (Bourdieu and Passeron 1977; Bowles and Gintis 2011; Bruch and Soss 2016). Inside schools, the relationships between students and teachers are often characterized by unequal power, with teachers directing students' behaviors and actions. However, there is variation in these relationships. In some situations, students may be given opportunities to be

leaders who direct other students in certain activities, and who are treated more equally with respect to teachers and administrators. In some classrooms, teachers encourage students to be active in their learning experience and give them opportunities to think critically, question the teacher, and lead projects. These positive experiences set some students apart from others, suggesting their place in the school hierarchy is closer to teachers than to other students. However, there are also negative signals and experiences that reinforce students' lack of power in relation to teachers, underpinning the belief that their voice is not important. Positive signals, such as taking advanced or honors courses or being a club leader, and negative signals, such as being disciplined or suspended, can feed into students' identity formation during adolescence. Ultimately, this process contributes to their political identity or habitus, as well as an understanding of their place in society and whether their voice is important and worthy of being heard (Bourdieu 1984; Bourdieu and Passeron 1977). Students with positive positions in schools may develop stronger political identities than those in negative positions because relationships with authority figures and peers reinforce the importance, or unimportance, of their position within society.

Using a nationally representative survey of high school students, linked to respondents' voting records in midlife, I investigate whether (dis)empowering experiences in high school predict voting patterns in midlife. Midlife is a life course stage with some of the highest rates of voter turnout, and midlife individuals take up nearly 1/3 of the electorate in each election (McDonald 2018). Understanding how schooling experiences shape who votes during midlife has important implications for who is represented in a democracy. I pay particular attention to who has empowering versus disengaging experiences in school and the role of educational and

political pathways after high school in the process. I find that leadership positions and advanced course-taking during high school can support higher levels of political participation, but those who were disciplined during high school are less likely to vote in midlife.

Political Identity and School (Dis)Empowering Experiences

Voting is a unique opportunity for individuals to speak to those in positions of power and to hold political officials accountable to their own hopes, opinions, and demands. Whether people choose to exercise this right is shaped by a number of factors, including their marital status, their neighborhood context, the voting regulations in their area, their wealth, and their social networks, but, at the heart of it, people need to believe that their voice is important and that it will be heard. Since most individuals do not have direct contact with the government, their interactions with formal institutions teach them their role within the greater political context. How individuals are treated within these institutions suggests to them the power of their political voice and whether it is valued (Bruch, Ferree, and Soss 2010; Mettler and Mettler 2005; Soss 2002). For example, engagement with government actors involved in welfare programs can help or hurt civic engagement depending on the organizational structure. Programs that allow for autonomy and treat people with dignity and respect, like the G.I. Bill, support civic engagement (Mettler and Soss 2004), whereas programs that are more paternalistic and controlling, like Temporary Assistance to Needy Families (TANF), disengage individuals from politics (Bruch et al. 2010). Outside of the realm of public policy, research has found that individuals that have had contact with the criminal justice system are less likely to engage in any formal institutions (Brayne 2014), particularly through voting, both because of felony disenfranchisement (Uggen and Manza 2002) and because negative interactions with authority figures suggest their voices

should remain silent (Lerman and Weaver 2014). On the other hand, individuals who have been successful in educational institutions, who participate in voluntary associations, or who have high status jobs are more likely to be politically engaged (Nie et al. 1996; Verba, Schlozman, and Brady 1995), potentially because of opportunities for leadership and empowerment within these positions. Formal institutions socialize individuals into their relationships with government, either empowering them to be active citizens or disengaging them from the political process. I examine whether experiences in schools during adolescence are particularly important for shaping individuals' political trajectories.

As adolescents gain more independence from their families in their late teens, they search for more autonomy and relationships characterized by shared value and power (Eccles et al. 1993; Eccles and Roeser 2011; Elder 1998; McAdams and Olson 2010). Although they enter high school with different aspirations, skills, habits, and feelings of autonomy, students' political identities continue to form in relation to signals they receive from authority figures and peers within their school. Adolescents have heightened concerns about how they rank according to their peers (Barber, Eccles, and Stone 2001), so having an advantaged position, such as being a club leader or taking advanced courses, or a disadvantaged position, such as being disciplined or suspended, may reinforce the importance of their voice (Levinson 2012; Bourdieu and Passeron 1977; Bruch and Soss 2016; Janmaat et al. 2014; Jæger and Breen 2016). Interactions with authority figures inside school teach adolescents where they belong on the spectrum of power relations: from disengaged, passive, and powerless to autonomous, active, and empowered (Levinson 2012). Positions and relationships within institutions during this period can signal how

individuals may be treated in institutions as adults, shaping whether they choose to use their voice in politics across the life course by voting.

I investigate three types of high school experiences that could empower students by giving them autonomy and chances to use their voice and be heard or disempower students by reinforcing their lower-ranked position and silencing them: leadership positions in extracurricular activities, course-taking level, and discipline. Each of these dimensions of high school education suggest a weakening—in the case of leadership and advanced course-taking—or a strengthening—in the case of discipline—of the typical top-down relationship between teachers and students. In situations where this relationship is weaker, students may be more empowered to use their voice through voting across the life course, whereas experiences characterized by a reinforcement of the top-down approach may disempower students and disengage them from the political system.

Who has positive versus negative experiences may be particularly important to understand, given the unequal representation by socioeconomic status in both high school opportunities and the electorate. Parents can transmit advantages to their children through reinforcing academic skills and habits that are rewarded by teachers (Bourdieu and Passerone 1977; Bowles and Gintis 2011). Teachers may then offer greater support and opportunities to students they perceive as more deserving because of their skills and behaviors in the classroom (Jæger and Breen 2016). Students who have higher levels of effort, higher achievement test scores, better opinions about school, and higher educational aspirations may be more likely to have opportunities for leadership and advanced course-taking and face less discipline; these students often come from more advantaged backgrounds. I consider the role of family

background and students' behaviors and skills in opportunities for (dis)empowerment in high school and voting in midlife. Below, I elaborate on the adolescent experiences I consider and why they may be related to voting.

Adolescent Empowerment Through Leadership

Research has found that participating in youth-serving organizations, performing community service, and participating in extracurricular activities during adolescence is positively related to political engagement and voting in early adulthood (Frisco, Muller, and Dodson 2004; Glanville 1999; Hanks 1981; McFarland and Thomas 2006). In particular, activities that mimic what participating in voluntary associations as adults is like, such as those that ask participants to work together towards a concrete goal, are important for political participation in early adulthood (Glanville 1999; McFarland and Thomas 2006; Verba et al. 1995). The hypothesized connection between participation in these activities and political engagement is that they socialize adolescents into the importance of being an active member of their community and support prosocial skills, which contribute to political efficacy and action as individuals enter voting-eligible age and progress through early adulthood.

It is in these activities outside of the classroom that students are most exposed to explicit skills and knowledge that may aid in political participation later in life, but opportunities for club participation, let alone leadership, are not equally distributed. Students from advantaged backgrounds are more likely to be exposed to instrumental clubs, the types of extracurricular activities that support community engagement such as student government, youth organizations, debate, and school publications, and those from disadvantaged backgrounds have more access to expressive clubs, including sports, music, subject-matter clubs, and the arts (Barber et al. 2001;

Lareau 2011). Research that has examined the causal effect of high school leadership on adulthood outcomes—using height, attractiveness, relative age, and math test scores as instruments—does find a strong, significant association between leadership and earnings and occupational position later in life (Dhuey and Lipscomb 2008; Kuhn and Weinberger 2005), suggesting that selection into these opportunities is not driving the effects of leadership on wages, but similar analyses have not been performed for voting outcomes. Research that conditions on background characteristics, academic experiences, and school-level factors does find a significant, positive association between instrumental club participation in high school and voting in early adulthood (Glanville 1999; Hanks 1981; McFarland and Thomas 2006).

I argue that the power relations adolescents are exposed to in leadership positions shape whether they feel they have a voice in the government and use that voice to participate in elections. Specifically, I examine how being a leader in an instrumental club during high school predicts voting in midlife, considering selection into these experiences. My first hypothesis is:

Leadership positions during adolescence will positively predict voting in midlife, conditioning on family and civic background and student habits and skills.

Adolescent Academic Empowerment in the Classroom

Adolescent life course trajectories, and the skills and dispositions adolescents will take with them into adulthood, are also influenced by their experiences inside the classroom in high school. Research has found that adolescent skills and course-taking in high school predict educational attainment and labor market position in early adulthood and beyond (Arum and Shavit 1995; Bishop and Mane 2004; Rose and Betts 2004). This connection between high school academic preparation and labor market activity is often discussed in sociological literature

and educational policy, but how academic preparation may be related to other adulthood outcomes is less often studied. A few studies have shown that taking advanced courses in high school improves health and decreases risks of mortality in midlife (Carroll et al. 2017), suggesting that course-taking patterns may structure who has the cognitive and noncognitive skills that support better health behaviors and health outcomes as well. Course-taking opportunities are highly stratified by students' family background, race, and academic background (Carroll and Muller 2018), but research using the average school curriculum as an instrument has found that students who take more advanced math courses in high school have higher earnings in early adulthood (Rose and Betts 2004).

In studies of voting outcomes, most of the research only takes the level of academic coursework into account as a control for selection into school extracurricular activities (Hanks 1981; McFarland and Thomas 2006). Research that does investigate the link between the classroom and political engagement in early adulthood mainly focuses on the number of, content of, and instruction within civics coursework specifically, and finds null effects or effects that only persist for immigrant students (Callahan and Muller 2013). More often studies have found that the ways teachers engage with students in civics courses predict political engagement after high school. For example, teachers that support democratic deliberation in the classroom, and give students opportunities to voice their opinions, support higher civic outcomes than classrooms that discipline students or focus on memorization of facts (Hess and McAvoy 2014). These findings lend evidence to the idea that how students are treated in the classroom is related to their political empowerment. In this chapter, I examine how broader course-taking patterns are related to voting in midlife.

One of the main goals of education is to prepare students for college and a career, and the courses they take do affect these outcomes. However, differences in the ways students are taught and treated within the classroom may also be related to their political development. Referred to as the hidden curriculum, correspondence theory, habitus, and tracking, the ways students are rewarded and disciplined by teachers are related to their class background and potential class position in adulthood (Bourdieu and Passeron 1977; Bowles and Gintis 2011; Carroll and Muller 2018; Oakes 2005). Advanced courses in high school, as indicated by taking an honors, Advanced Placement (AP), or International Baccalaureate (IB) course, expose students to different classroom environments (Carroll and Muller 2018). Low level or general courses often emphasize conformity, discipline, passivity, and following the rules whereas advanced coursework emphasizes autonomy, creativity, and leadership (Oakes 2005). During adolescence, as individuals are seeking autonomy and defining their relationships with authority, exposure to high-level coursework may support their political development. There is some evidence from international contexts that individuals who receive vocational instruction within the same level of attainment are less politically engaged in early adulthood than those with academic instruction (Hoskins and Janmaat 2016; Janmaat et al. 2014; van de Werfhorst 2017). Advanced course-taking in high school may shape adolescents' political development as they approach voting eligible age and be related to their political empowerment in midlife. My second hypothesis is:

Advanced course-taking during adolescence will positively predict voting in midlife, conditioning on family and civic background and student habits and skills.

Adolescent Disempowerment through School Discipline

While leadership experiences or advanced course-taking may place students in environments that reinforce their autonomy and power, being disciplined in school may do the opposite. Research on school suspensions in particular has found that being suspended can not only lower students' achievement test scores and grades, but also their attachment to school and trust of adults (Brayne 2014; Perry and Morris 2014). In her piece on "No Excuses" charter schools, characterized by strict school discipline along with high expectations for students' level of achievement, Golann (2015) argues that strict disciplinary policies create passive learners who defer to authority, which can improve academic achievement but undermines the upward mobility goals of such schools. Although some argue that discipline may be necessary to keep students focused in school, the passivity and disempowerment required of disciplined students runs contrary to the tools needed to be successful outside of school. Receiving discipline in schools can also push students towards the school to prison pipeline, relegating certain students to positions of criminality that they remain in after schooling (Mittleman 2018). Research has found that those who have interactions with the criminal justice system are less likely to participate in formal institutions in general, especially through voting (Brayne 2014; Lerman and Weaver 2014). Discipline in school may play a similar role in disrupting students' political pathways.

School discipline can take many forms, ranging from classrooms with strict policies on clothing and behavior to individual disciplinary infractions to suspension from school to expulsion. I focus on individuals who report having disciplinary problems in school for a few reasons. First, this is a relatively low-level indicator of instances during school where a student

had to defer to an authority figure. This self-reported measure indicates that a student felt disciplined, indicating a possible negative interaction between the student and a teacher or administrator. Second, although some research has found a link between school-level discipline policies and civic participation (Bruch and Soss 2018), the cohort of individuals I investigate, sophomores in high school in 1980, left high school before the criminalization of schools, defined as increases of security guards, zero-tolerance policies, and stricter behavioral guidelines (Bruch and Soss 2018). Thus, the school-level rules for discipline for this cohort operate differently than in the schools of today. I argue that a student who reports being disciplined in school may feel disempowered within the institution, and not develop a political habitus as they enter adulthood. My third hypothesis is: *Being disciplined in school during adolescence will negatively predict voting in midlife, conditioning on family and civic background and student habits and skills.*

Adolescent (Dis)Empowerment and Pathways into Adulthood

Part of the reason why adolescent experiences may be related to voting in midlife is through the pathways students enter after high school. I examine the roles of postsecondary educational attainment and voting in early adulthood in these processes. College-going is one of the strongest predictors of voting, and having leadership experiences, taking advanced courses, and discipline shape the likelihood a student will go to and graduate from college. Research estimating the causal effect of college on voting has found that going to college improves voting, even when considering possible endogeneity through instrumental variable or difference-in-difference approaches (Dee 2004; Sondheim and Green 2009). However, given that adolescence is a critical period for the development of one's identity, there may be heterogeneity

within levels of educational attainment related to these high school (dis)empowering experiences that is related to voting later in life.

Most of the prior research that has investigated the links between schooling and voting outcomes has focused on the short-term, looking at voting in early adulthood. However, voting in early adulthood is a relatively unique event, with less than half of early adulthood individuals choosing to vote in each presidential election. Voting in midlife, however, is a common event, with more than 65% of midlife individuals voting in presidential elections (McDonald 2018). I argue that part of the pathway from adolescent (dis)empowering experiences is through voting in early adulthood, but there may still be an independent relationship between adolescent experiences and voting in midlife. Thus, my fourth hypothesis is: *Leadership, advanced course-taking and discipline during adolescence will independently predict voting in midlife, conditioning on family and civic background, student habits and skills, educational attainment, and voting in early adulthood.*

Present Study

Adolescence is a time when individuals develop their dispositions and the identities they will take with them into adulthood. Adolescence may be a critical period for the development of a political identity and the extent to which one believes they have a voice in politics as well. The typical top-down relationship between teachers and students in high school is not reflective of the ground-up relationship between voters and government. I examine the role of (dis)empowering experiences in high school, which suggest variation in teacher-student relationships, in supporting political engagement across the life course to get a better understanding of whether schools can disrupt political inequality. I examine whether

opportunities for empowerment, through leadership positions and advanced course-taking, and for disempowerment, through school discipline, predict voting patterns in midlife. I consider the roles of selection into these opportunities and pathways after high school in the process.

Data and Methods

I use the High School and Beyond dataset (HS&B), which has rich data on individual background and education, linked to Catalist, a national database of voting records. The original base year sample of HS&B included about 60,000 sophomores and seniors within 1,000 schools in 1980. A nationally representative subsample of about 15,000 sophomores was selected as a panel and followed-up in 1982, 1984, 1986, and 1992. My analytic sample includes the members of the sophomore cohort that are linked to voting records in Catalist, excluding those who did not stay until their senior year of high school (N=8,260). I discuss weighting procedures to account for sample selection in the Analytic Plan, and in Chapter 2 of this dissertation.

Outcome Measures

I include two outcome measures to understand political participation in midlife. First, I investigate the *number of times individuals voted in midlife*, including primary and general elections in 2010, 2012, 2014, and 2016 when individuals were ages 45 through 52. This measure depicts the level of political participation throughout midlife from 0, voted in no elections, to 8, voted in every election. Second, I predict whether the individual *voted in the 2016 presidential election*, the election with the highest voter turnout rate for this cohort. This measure examines the likelihood of an individual voting in one specific, highly contested election.

Independent Variables

Adolescent (Dis)Empowering Experiences: I have three measures to consider adolescents' positions within their schools. The first measure indicates being in a leadership position from a series of questions about students' activities and leadership during their senior year of high school (1982). *Instrumental Club Leadership* indicates having a leadership position in an instrumental club, including youth organizations, church activities, community service, debate or drama, school publications, student government, and junior achievement (Glanville 1999).⁴ The second measure indicates empowerment within the classroom through *Advanced Course-taking*. Using the HS&B high school transcripts, I coded all courses students took as honors, AP, IB, or none using Classification of Secondary School Courses (CSSC) codes. The measure is a dichotomous indicator of whether the student took any honors, AP, or IB courses during their junior or senior year. Although there are many ways to measure course-taking patterns, I chose to use honors courses because they signal a clear distinction from other courses offered in the school, unlike focusing on the level of courses (such as taking Algebra 2 or above, Physics or advanced foreign language) or the school curricular track, which is often over-reported (Arum and Shavit 1995). However, analyses using these other indicators of course-taking have similar results. The last measure indicates a disempowering experience through being *Disciplined in School*. This measure is derived from a question that asks whether students "had disciplinary problems in school" during their senior year. Other indicators of disciplinary infractions, such as

⁴ Debate and drama are included together in the survey, but are conceptually different, with debate considered an instrumental club and drama considered an expressive club. The results do not change if I include or exclude this type of club leadership in the analysis.

being suspended, have similar results, but few individuals had these extreme forms of discipline in my sample.

Family and Civic Background: To condition on students' political identities before having these (dis)empowering experiences, I include measures of family background and civic involvement from the base year survey, when students were in their sophomore year of high school. *Family Background* measures include parents' education, family structure, family income, number of siblings, and home ownership. *Civic Involvement* measures include religious affiliation, whether the individual reported a political party affiliation, how often the individual attended church, and club participation.

School Habits and Skills: To condition on student behaviors that may be related to their opportunities for empowerment in school, I include measures of students' skills and habits from their sophomore year of high school. *Skills* measures include math, verbal, and civics test scores. *School Habits* include measures of locus of control, a scale of school effort and interest, and the students' expectations of going to college.

Early Adulthood Pathways: I measure *Educational Attainment* from students' self-reports of their degree attainment and degrees reported in the postsecondary transcript collection. This measure takes into account any educational attainment reported by 1992, when respondents were about 28 years old. *Voting* indicates whether the individual reported voting in the 1984 or 1988 presidential elections.

I also control on *age, race, gender, immigrant status, school type, and school region*.

Analytic Plan

My analysis proceeds in two steps to examine the association between adolescent (dis)empowering experiences and voting in midlife. First, I examine the relationship between adolescent leadership, advanced course-taking, and discipline and voting in midlife using OLS regression to predict the number of times individuals voted and logistic regression to predict the likelihood of voting in the 2016 presidential election. I nest the models, first to examine the baseline relationship between these adolescent experiences and voting. I then assess the roles of family and civic background, students' habits and skills, educational attainment, and voting in early adulthood. I report average marginal effects (AMEs) for the logistic regression models to be able to compare coefficients across models. Results using Poisson regression to predict the number of votes are similar to those presented here.

Second, I perform a decomposition to understand how much of the relationship between leadership, advanced course-taking, and discipline are explained by students' background, skills, educational attainment, and voting in early adulthood. The method I employ separates the estimated effects of my three main independent variables into direct and indirect effects, and displays the percent of the indirect effect attributable to family and civic background, habits and skills, educational attainment, and early voting (Kohler, Karlson, and Holm 2011).

All of my analyses are weighted to account for selection into the Catalist sample, as described in Chapter 2. For all analyses, I use multiple imputations for missing data and clustered standard errors at the school level to account for the nesting of students within schools.

Robustness Checks

Given the concern about selection into the adolescent (dis)empowering experiences I examine, and the possibility of unmeasured endogenous factors related to these experiences and voting, I perform a number of analyses to ensure my findings are robust to alternate specifications. First, I use school fixed-effects models to condition on differences in school-level opportunities for leadership positions, honors course-taking, and discipline, as well as unmeasured characteristics of schools, and students within schools, that may play a role in the relationship between high school experiences and voting. Second, I use propensity score matching to condition on differential probability of being a club leader, taking an advanced math course, or being disciplined. My findings are robust to these alternative specifications.

I also estimated separate models for each (dis)empowering experiences to investigate selection mechanisms specific to leadership, course-taking, and discipline. Following techniques used in the literature to examine the causal relationship between leadership and earnings (Dhuey and Lipscomb 2008; Kuhn and Weinberger 2005), I performed instrumental variable analyses using height, perceived attractiveness, and average number of leadership positions in a school. The point estimates are similar across each of these specifications, but inflated standard errors in predicting number of votes with the average number of leadership positions in the school render the result statistically insignificant. I use similar techniques to investigate the estimated causal effect of honors course-taking on voting in midlife. Following Rose and Betts (2004), I examine whether taking an additional honors course is associated with higher rates of voting in midlife when using the average number of honors courses taken in the school as an instrument. With this specification, the number of honors courses one takes is not significantly related to voting in

midlife. However, further investigation of this finding reveals that, on average, students tend to either take no honors courses or multiple honors courses, and the distinction for voting is between taking one course and not taking any versus the number of honors courses you take. Although the findings are not robust to this alternative specification—one's voting does not increase with each additional honors course taken—my other estimates give me confidence that, for course-taking, the separation between being an honors student or not predicts voting more than the number of honors courses taken.

For school discipline, there are fewer examples of instrumental variable analyses that examine the later life outcomes of school discipline. However, I do examine whether school-level discipline policies, students' opinions about the level of discipline in their schools, or students disciplinary behaviors explain the relationship between having a disciplinary problem and voting in midlife. The findings from these analyses suggest that reporting being disciplined in school during adolescence has a significant, positive association with voting, even when considering students' perceptions of school discipline, disciplinary school context, and own behavior.

As a final test of the robustness of my results, I use the Konfound method in Stata (Frank et al. 2013; Frank and Xu 2018). This method calculates the percentage of your sample that would have to be replaced with cases with a null relationship to invalidate one's inferences and estimates how sample selection may bias results by calculating what the hypothesized correlation between the main independent variable of interest (leadership, course-taking, discipline) and the outcome (voting) in the unmatched portion of the sample to make the relationship no longer significant. I report the findings of both of these checks in the results section.

Results

Table 4.1 displays descriptive statistics for the full sample, and by whether or not individuals voted in midlife. Voting is common for this age group; 80% of midlife individuals voted in at least one election. However, voting is not uniform across elections. The average number of votes in midlife for those that did vote is about 4, suggesting that how often one votes, and whether they vote in general elections only, may be an important stratifying factor along with whether or not they vote at all. In addition, about 70% of the sample voted in the 2016 election.

The next part of the table shows that voting in midlife is related to adolescent (dis)empowering experiences. Those who voted at least once in midlife had significantly higher levels of instrumental club leadership and honors course-taking than those who did not vote in midlife. On the other hand, those who did not vote in midlife have higher rates of discipline. The rest of the table displays gaps between midlife voters and nonvoters in their background and early adulthood education and voting. Midlife voters come from more advantaged families and have higher skills, levels of education, and rates of voting in early adulthood than those who did not vote in midlife. These descriptive results suggest that adolescent (dis)empowering experiences are associated with midlife voting, but selection into these positions or processes in early adulthood may account for some or all of these gaps.

Table 4.1: Weighted descriptive statistics for full analytic sample and by voting in midlife

	<i>Full Sample</i>	<i>Didn't Vote</i>	<i>Voted</i>	
Midlife Voting	%/Mean	%/ Mean	%/ Mean	Sig.
<i>Voted</i>				
No	20.00%	100.0%	0.00%	
Yes	80.00%	0.00%	100.0%	
<i>Number of votes</i>	3.30	0.00	4.15	
(SD)	(2.48)	(0.00)	(2.05)	
<i>Voted in 2016 Presidential Election</i>				
No	30.10%	100.0%	12.60%	
Yes	69.90%	0.00%	87.40%	
Adolescent (Dis)Empowering Experiences				
<i>Instrumental Club Leadership</i>				
No	76.10%	82.40%	74.60%	
Yes	23.90%	17.60%	25.40%	***
<i>Honors Course-taking</i>				
No Honors Courses	78.20%	84.80%	76.60%	
At least one honors course	21.80%	15.20%	23.40%	***
<i>Disciplined in School</i>				
No	85.90%	80.80%	87.10%	
Yes	14.10%	19.20%	12.90%	*
<i>Sex</i>				
Female	51.10%	48.50%	51.70%	
Male	48.90%	51.50%	48.30%	
<i>Race</i>				
White	71.90%	65.80%	73.50%	
Black	11.90%	13.10%	11.60%	
Hispanic	12.00%	15.50%	11.10%	***
Asian	1.40%	1.70%	1.30%	*
Other	2.80%	3.90%	2.60%	
<i>School Type</i>				
Public	89.70%	93.50%	88.70%	
Catholic	6.80%	4.10%	7.50%	***
Private	3.50%	2.40%	3.80%	*
<i>School Region</i>				
Northeast	23.60%	24.20%	23.40%	
South	31.70%	34.10%	31.10%	
Midwest	27.80%	24.00%	28.80%	
West	16.90%	17.70%	16.70%	
<i>Immigrant Status</i>				
Not an Immigrant	96.00%	94.20%	96.40%	
Immigrant	4.00%	5.80%	3.60%	*

Table 4.1 [cont.]	<i>Full Sample</i>	<i>Didn't Vote</i>	<i>Voted</i>	
	%/Mean	%/ Mean	%/ Mean	Sig.
Age	15.51	15.59	15.49	**
(SD)	(0.63)	(0.76)	(0.59)	
<i>Parents' Education</i>				
Less than High School	12.00%	14.90%	11.30%	
High School	35.00%	41.00%	33.40%	
Some College	28.60%	26.60%	29.10%	**
Bachelor's Plus	24.50%	17.50%	26.30%	***
<i>Lives with Both Parents</i>				
Yes	70.50%	67.20%	71.30%	
No	29.50%	32.80%	28.70%	*
<i>Parents Own their Home</i>				
No	78.50%	74.40%	79.60%	
Yes	21.50%	25.60%	20.40%	**
Family Income	21486.8	20085.7	21848.0	
(SD)	(11402.6)	(10872.3)	(11508.6)	
Number of Siblings	2.96	3.19	2.90	
(SD)	(2.06)	(2.20)	(2.02)	
Civic Background				
Number of Clubs Participated	2.01	1.92	2.03	
(SD)	(1.54)	(1.50)	(1.55)	
<i>Political Party</i>				
Has an Affiliation	50.90%	43.20%	52.90%	
Don't Know/None	49.10%	56.80%	47.10%	***
<i>Religion</i>				
None	6.90%	8.70%	6.40%	
Baptist	20.20%	24.20%	19.20%	**
Methodist	9.70%	7.60%	10.20%	**
Lutheran	6.40%	4.80%	6.90%	
Presbyterian	5.30%	6.00%	5.10%	
Episcopalian	1.90%	1.60%	2.00%	
Other Protestant	4.30%	4.20%	4.30%	
Catholic	33.70%	30.70%	34.40%	**
Other Christian	6.00%	5.40%	6.20%	*
Jewish	1.40%	0.50%	1.60%	**
Other religion	4.30%	6.20%	3.80%	
<i>Church Attendance</i>				
None	16.90%	20.90%	15.90%	
Few Times a Year	20.20%	22.10%	19.80%	
Monthly	6.80%	7.60%	6.60%	
2-3 Times a Month	10.10%	10.00%	10.10%	
Weekly	33.10%	26.40%	34.80%	***

Table 4.1 [cont.]	<i>Full Sample</i>	<i>Didn't Vote</i>	<i>Voted</i>	
	%/Mean	%/ Mean	%/ Mean	Sig.
More than Once a Week	12.80%	13.00%	12.80%	
Skills Sophomore Year				
Math Test Score	19.15	17.55	19.56	***
(SD)	(7.39)	(6.93)	(7.45)	
Verbal Test Score	20.33	18.70	20.75	***
(SD)	(7.62)	(7.36)	(7.63)	
Civics Test Score	5.90	5.56	5.99	***
(SD)	(2.03)	(1.99)	(2.03)	
Habits Sophomore Year				
Locus of Control	3.55	3.47	3.58	***
	(0.55)	(0.54)	(0.55)	
Effort Scale	-0.01	-0.13	0.02	***
	(0.97)	(0.98)	(0.97)	
<i>College Expectations</i>				
No College	24.00%	32.20%	21.80%	
Some College	33.20%	35.10%	32.70%	**
Bachelor's Plus	42.80%	32.70%	45.40%	***
Early Adulthood				
<i>Highest Degree Earned</i>				
High School or below	54.30%	69.70%	50.30%	
Some College	19.80%	18.70%	20.10%	***
Bachelor's Degree	25.90%	11.60%	29.60%	***
<i>Presidential Voting</i>				
Didn't Vote	35.40%	55.00%	30.30%	
Voted at least once	64.60%	45.00%	69.70%	***
N	8260	1380	6880	

Note: The final column tests for statistically significant differences among those who did and did not vote in midlife. *** p<0.001, ** p<0.01, and * p<0.05

Adolescent (Dis)Empowering Experiences and Voting in Midlife

Table 4.2 displays the results of OLS regressions predicting the number of times individuals voted in midlife. The adolescent (dis)empowering experiences I examine predict midlife voting at similar magnitudes. In model 1, including basic controls, adolescents with empowering experiences vote between about .7 and .5 times more and adolescents with disempowering experiences vote about .6 times less in midlife than those without these experiences. Selection into these experiences through family and civic background and school habits and skills accounts for part of these relationships in models 2 and 3, but adolescents in leadership positions or honors courses vote about .5 times more in midlife and adolescents who were disciplined vote about .5 times less in midlife than those without these experiences. In the next two models, early adulthood educational attainment and voting accounts for part of the relationship between these (dis)empowering experiences and the number of times individuals vote in midlife, but a significant relationship remains. About 60% of the empowering experiences operate indirectly through family and civic background, school habits and skills, educational attainment and voting in early adulthood. However, only about 40% of the disempowering experience operates indirectly through these pathways. I examine these relationships further in the decomposition analysis.

To test the robustness of these estimates, I use the Konfound method to calculate what percentage of the sample would have to be replaced with those with a null relationship between these (dis)empowering experiences and voting in midlife to invalidate my results. The least robust of these estimates is leadership; only 13% of cases would need to be replaced to invalidate these findings. For course-taking, it is 33% and for discipline it is 48%. These results suggest

that, even when conditioning on family background, school habits and skills, educational attainment, and self-reported voting in early adulthood, students who took honors courses or were disciplined have different voting outcomes than those without these (dis)empowering experiences in high school.

Table 4.3 displays a similar pattern, however having a leadership position predicts voting in the 2016 presidential election at about half the magnitude of taking an honors course and being disciplined in school. In model 3, conditioning on family and civic background and school habits and skills, being an instrumental club leader does not significantly predict voting in the 2016 presidential election. However, those who took an honors course have about an 8 percentage point higher probability of voting in 2016 than those who did not take an honors course. In addition, adolescents who were disciplined in high school have about a 7 percentage point lower probability of voting in 2016 than those who were not disciplined. Even when conditioning on family and civic background, school habits and skills, educational attainment, and voting in early adulthood in model 5, individuals with (dis)empowering experiences have about a 6 percentage point difference in their probability of voting than those without these experiences. For both honors course-taking and discipline, about half of the estimated effect operates indirectly through these pathways. To put these findings in perspective, the estimated effect of honors course-taking and school discipline on voting in the 2016 presidential election is about half of the estimated effect of having a bachelor's degree or voting in early adulthood on voting in midlife. To invalidate these findings, between 30 and 40% of the cases would have to be replaced with cases with a null relationship between honors course-taking and discipline and voting in 2016.

Table 4.2: OLS regressions predicting number of midlife primary and general election votes

	1	2	3	4	5
Adolescent Experiences					
Instrumental Club Leader [ref. not an instrumental club leader]	0.486*** (0.091)	0.402*** (0.093)	0.346*** (0.093)	0.312*** (0.091)	0.204* (0.091)
Took an Honors Course [ref. didn't take honors]	0.669*** (0.090)	0.531*** (0.090)	0.380*** (0.094)	0.290** (0.093)	0.268** (0.091)
Disciplined [ref. not disciplined]	-0.583*** (0.109)	-0.522*** (0.106)	-0.455*** (0.106)	-0.396*** (0.106)	-0.393*** (0.105)
Early Adulthood					
Educational Attainment [ref. High School]					
Some College				0.236* (0.109)	0.119 (0.108)
Bachelor's or Above				0.877*** (0.104)	0.730*** (0.100)
Voted in Presidential Election [ref. didn't report voting]					1.089*** (0.082)
Constant	5.878*** (0.969)	5.084*** (0.979)	3.164** (1.028)	3.326** (1.009)	2.927** (0.967)
R-squared	0.051	0.073	0.084	0.099	0.138
log likelihood	-18996	-18898	-18850	-18783	-18598
Controls Included					
Family & Civic Background	no	yes	yes	yes	yes
School Habits and Skills	no	no	yes	yes	yes

Note: Robust standard errors in parentheses. All models control on sex, age, race, school type, and school region. Family and civic background variables include parents' education, family income, home ownership, number of siblings, religion, church-going, political affiliation, and sophomore year club participation. School habits and skills include locus of control, scale of school effort and interest, educational expectations and math, verbal, and civics test scores. N=8,260. *** p<0.001, ** p<0.01, and * p<0.05.

Table 4.3: Logistic regressions predicting voting in the 2016 presidential election, reporting average marginal effects (AMEs)

	1	2	3	4	5
Adolescent Experiences					
Instrumental Club Leader [ref. not club leader]	0.049** (0.018)	0.037* (0.018)	0.030~ (0.018)	0.024 (0.018)	0.010 (0.018)
Took an Honors Course [ref. didn't take honors]	0.117*** (0.017)	0.099*** (0.017)	0.077*** (0.018)	0.062*** (0.018)	0.059** (0.018)
Disciplined [ref. not disciplined]	-0.094*** (0.023)	-0.083*** (0.022)	-0.072*** (0.021)	-0.061** (0.021)	-0.061** (0.021)
Early Adulthood					
Educational Attainment [ref. High School]					
Some College				0.033 (0.022)	0.018 (0.022)
Bachelor's or Above				0.151*** (0.019)	0.134*** (0.019)
Voted in Presidential Election [ref. didn't report voting]					0.128*** (0.017)
BIC	3.860e+09	3.790e+09	3.770e+09	3.720e+09	3.670e+09
log likelihood	-1.930e+09	-1.900e+09	-1.880e+09	-1.860e+09	-1.830e+09
Controls Included					
Family & Civic Background	no	yes	yes	yes	yes
School Habits and Skills	no	no	yes	yes	yes

Note: Robust standard errors in parentheses. All models control on sex, age, race, school type, and school region. Family and civic background variables include parents' education, family income, home ownership, number of siblings, religion, church-going, political affiliation, and sophomore year club participation. School habits and skills include locus of control, scale of school effort and interest, educational expectations and math, verbal, and civics test scores. N=8260. *** p<0.001, ** p<0.01, and * p<0.05.

In Table 4.4, I examine how much each of the measured factors from before and after high school contributes to the estimated indirect effect of leadership, honors course-taking, and discipline on voting in midlife. The largest portion of the indirect effect of these adolescent (dis)empowering experiences operates through educational attainment and voting in early adulthood. Less than half of the estimated indirect effect is due to selection into these adolescent (dis)empowering experiences. These findings suggest that opportunities for empowerment or disempowerment during high school do play a role in shaping students' political trajectories into adulthood, both directly and through their early adulthood educational attainment and voting.

Table 4.4: Decomposition of estimated indirect effects of adolescent
(dis)empowering experiences on midlife voting

	Number of Midlife Votes		Voting in 2016 Presidential Election	
	Indirect Coef.	Sig.	Indirect Coef.	Sig.
<i>Leadership</i>	0.282	***	0.212	***
Contribution to the Indirect Effect	%		%	
Family and Civic				
Background	3.77		5.00	
School Habits and Skills	14.22		16.14	
Educational Attainment	26.72		35.77	
Voting	55.27		43.11	
	Indirect Coef.	Sig.	Indirect Coef.	Sig.
<i>Honors Course-taking</i>	0.402	***	0.344	**
Contribution to the Indirect Effect	%		%	
Family and Civic				
Background	10.44		9.73	
School Habits and Skills	22.04		22.49	
Educational Attainment	43.03		51.02	
Voting	24.49		16.75	
	Indirect Coef.	Sig.	Indirect Coef.	Sig.
<i>Discipline</i>	-0.190	***	-0.167	***
Contribution to the Indirect Effect	%		%	
Family and Civic				
Background	15.80		15.77	
School Habits and Skills	18.14		18.02	
Educational Attainment	45.80		52.65	
Voting	20.25		13.56	

Note: * p<.05, **p<.01, and *** p<.001.

Conclusion

Taking a life course perspective on political empowerment, I examine how adolescent experiences within high school are related to voting in midlife. Using the HS&B dataset linked to respondents' midlife voting records in Catalist, I find that empowering and disempowering experiences during adolescence are related to how often and when individuals vote in midlife. Conditioning on background, skills, educational attainment, and voting in early adulthood, adolescents who were leaders in instrumental clubs and who took honors courses in school were more likely to vote in midlife. However, adolescents who were disciplined in school were less likely to vote in midlife.

Most research on civic development during adolescence focuses on participation and leadership in activities outside of the classroom, but my research suggests that one's academic position in high school and experiences with discipline are also important for political outcomes. Research that has looked at academic experiences and voting mainly focuses on civics courses, but my research suggests that overall course-taking patterns can contribute to political inequality. A long history of research in the sociology of education has found that inequality in course-taking patterns has long-term effects on inequality in educational and labor market attainment, but this research overlooks possible political implications of this academic inequality. Can schools prepare all students to be engaged citizens while stratifying their academic opportunities in schools? Or, in Verba and colleagues' words, "can we have equality of voice but inequality of resources?" (1972). My research provides some evidence that inequality in academic experiences in adolescence contributes to inequality in voting in midlife. The voices of those who are

disciplined in high school or who do not take honors courses are not equally represented in our democracy.

In addition, my paper joins the debate about the possible negative effects of school discipline policies. Having a classroom of students that sits silently and listens to the teacher without disruptions can improve students' test scores and improve the amount of curriculum teachers are able to cover, but high school does more than impart facts to students. Other parts of students' identities, including their level of grit, their growth mindset, their agency, and their political identity are also molded by their relationships with teachers and other authority figures in schools. Although most accountability systems focus on students' ability to perform on standardized tests, high school graduation rates, and rates of college-going, more and more researchers, teachers, and policy-makers are recognizing that these indicators do not tap into all the skills and dispositions we hope for our students as they enter adulthood. Currently, citizenship education, what it should look like, and how to assess it, is being debated within federal and state policy. One important factor to consider may be how to give students feelings of power and agency within schools, and not just ensuring they know the branches of government and history of the United States.

Previous literature on the link between educational attainment and voting posits that the association is related to people with higher levels of education having more resources, in the form of skills, wages, flexible jobs, civically engaged social networks, and living in civically engaged neighborhoods. Some research also suggests that part of the association is related to selection—individuals with more political interest are more likely to go to college—and to socialization—colleges instilling in individuals the importance of political participation.

Although my findings indicate that part of the association between adolescent (dis)empowering experiences and midlife voting operates through background, skills, and resources in early adulthood, an independent association remains. I argue that institutions communicate to adolescents whether their voice is valued in society, and that experiences for empowerment in schools play a role in this process. Thus, institutions during adolescence may instill in some individuals the importance of voting, and in others that their voices do not matter. Given the nature of observational survey data, I cannot be sure the exact process through which this occurs, or if there are other endogenous factors in this association. However, my evidence does suggest that differential empowering experiences during high school may shape inequality within the political arena.

My analysis is limited by the data available. I am not able to consider factors between early adulthood and midlife that may be related both to voting and adolescent experiences, including marital status, family formation, civic participation, skills, criminal justice contact, wealth or income. In addition, my analyses do not take into consideration institutional barriers to voting, such as voter suppression tactics that vary across states. Overall, I cannot claim that there is a causal relationship between adolescent (dis)empowering experiences and voting in midlife. Lacking strong instruments, other exogenous shocks, or a randomized experiment, which are not available in any nationally representative, longitudinal database for individuals from high school to midlife, I cannot offer definitive evidence on cause. I do my best, however, to build a strong case for this causal relationship by conditioning on well-measured attributes that past literature shows are associated with adolescent integration and by conducting robustness checks based on prior research investigating these high school experiences. I find consistent evidence of the

relationship between adolescent (dis)empowering experiences and voting across a variety of functional forms and specifications. My findings are consistent with the premise that leadership, advanced course-taking, and discipline in high school may have a long-term effect on political inequality.

One critical assumption in my theory is that the high school experiences I examine—leadership, honors course-taking, and discipline—signal different relationships with authority figures within schools. The traditional top-down approach to teaching—students are passive receptors of knowledge instead of active parts of their own learning—is not uniform across teachers, classrooms, students, and schools. I am using the high school (dis)empowering experiences as signals of changes in this relationship, but there could still be variation in student-teacher relationships that contributes to voting later in life. In the next chapter, I investigate this possibility by examining how teachers’ perceptions of students may limit their political development.

Chapter 5: Teachers as Molders of Political Efficacy

The previous chapter suggests that (dis)empowering experiences in schools can impact voting later in life. Part of the proposed mechanism is students' relationships with authority figures, and that students are treated differently by teachers if they are in leadership positions, take honors courses, or are disciplined. This chapter further examines this proposed mechanism by investigating the role of teachers' perceptions of students in shaping their voting trajectories. Theories discussing the reproduction of inequality in schools often assume that teachers view students from different backgrounds differently, shaping how they treat students in their classrooms (Bourdieu and Passeron 1977; Jæger and Breen 2016). Although often teachers are described as superheroes who can make a huge, positive impact on students' lives, they are also human and live within the same unequal societal structure as the rest of us. Teachers' biased opinions about students can show through the opportunities they provide to students, their grades, and their recommendations for students' future educational opportunities. The daily interactions between students and teachers, and whether they are characterized by positivity and shared value or negativity and discipline, may be related to political development. In this chapter, I empirically test this notion through the lens of reproduction of inequality in voting behaviors and the development of political efficacy in students.

Educational institutions can support unequal learning experiences and opportunities for civic development. These divisions stem from the dual function of schools, preparing students for the stratified world of education and work while also preparing them to be engaged citizens. Schools are often a site for the reproduction of inequality in the labor market, granting advantaged students access to better learning opportunities that prepare them to take their place

at the top of labor market ladder while preparing lower status students to accept their lower-level position (Bourdieu and Passeron 1977). Although schools have the capacity to empower all students to be politically active across their lives, they operate within this larger context of inequality.

Within this context, teachers take on multiple roles within educational institutions. Their explicit professional role is to develop students' skills and enforce disciplinary codes to prepare students for future educational and occupational opportunities. As institutional agents, teachers also socialize students into the social order of the school and greater society, either reproducing or disrupting inequality (Collins 2009; Stanton-Salazar 2001). At the core of adolescents' social networks are relationships with teachers and other institutional actors. Supportive relationships can increase student achievement across class, racial, ethnic, and gender-based lines. Negative experiences with teachers can promote student resistance against institutional structures. As adolescents approach voting-eligible age, the relationships they have with their teachers may affect the relationships they form with authority figures and other institutional agents across their lives. Teachers' perceptions of students' future success in the labor market and education and of their willingness to conform to school structures could have long-lasting implications for students' political development.

I explore this possibility by linking high school teachers' perceptions of students' potential and conformity to individuals' voting in midlife. The majority of the midlife population votes, and voters in this life period (ages 45 to 60) make up about 1/3 of the electorate (McDonald 2018). Understanding how experiences with teachers in high school shape the population of those who do and do not vote in midlife could uncover processes of political

inequality in the classroom that extend into electoral inequality for the country. Below, I discuss current research linking high school experiences to voting, the role of teachers as institutional agents during high school, and how teachers' perceptions of students' potential and conformity may predict long-term voting outcomes.

Teachers' Perceptions of Students and Voting

High school teachers can play an important role both in shaping students' future educational trajectories and in instilling in students the importance of voting to sustain our democracy. Adolescence is a critical period for the development of identity and dispositions related to education and politics and "teachers can be facilitators or gatekeepers of fundamental democratic ideas" (Collins 2010: x). Research has found that teachers' perceptions of students' abilities and effort are related to their future college and labor market experiences (Alvidrez and Weinstein 1999; Kim 2015; Timmermans, de Boer, and van der Werf 2016) and that students who perceive supportive relationships with their teachers are more likely to report voting or voting intentions in early adulthood (Campbell 2006; Hess and McAvoy 2014; Kahne and Sporte 2008).

In this paper, I examine teachers' perceptions of students in two forms that relate to teachers' contradictory roles of preparing students for the stratified world of education and work and preparing them all to participate in a democracy: teachers' perceptions of students' educational potential and of students' conformity to school social structures. I focus on teachers' perceptions of students for two main reasons. First, teachers have power within the classroom and school communities to guide students' learning opportunities in their classroom and in the future. Their perceptions of students' potential thus may limit or expand the opportunities they

provide to certain students, regardless of the individual student's abilities and expectations. Second, teachers serve as representatives of authority figures in schools, and their interactions with students may shape how students feel about authority and institutions across their lives. Teachers' perceptions of students' conformity to the system may reflect negative or positive interactions in the classroom that contribute to how students feel about authority in general.

Teachers' Perceptions of Students' Potential

Teachers form certain expectations for their students' success both within their classroom and after high school through their daily interactions with students, including students' participation in the classroom, test scores, grades, and background. Although these expectations may be related to students' abilities, research has found that teachers have lower expectations for students of color and lower class students than white, middle class students, even when considering students' level of skills (Irizarry 2015). Teachers of higher-level courses also can have higher expectations for their students, regardless of an individual students' abilities (Oakes 2005). Teachers' perceptions of students' effort and abilities can affect the expectations teachers hold for their students (Timmermans et al. 2016), which can, in turn, affect how much teachers push students or let them fall behind. Students with teachers who hold low expectations about them perform worse on reading and math tests than students with teachers who hold high expectations for the students' success (Kim 2015). Students can also internalize teachers' expectations, either propelling them to college and beyond or limiting their educational progress (Jussim and Harber 2005). Teachers' perceptions of students' college potential may structure the courses students take, the skills they learn, and their future educational attainment, all of which predict long-term voting patterns.

I examine how teachers' perceptions of whether a student will go to college are related to voting in midlife. I consider students' background characteristics, skills, course-taking, and educational attainment to ascertain whether there is a direct relationship between teachers' perceptions of students' potential and midlife voting, or if these teacher perceptions are related to the students' educational experiences. Teachers' perceptions of students' college potential may only be related to voting indirectly through students' high school and college educational experiences.

Teachers' Perceptions of Students' Conformity

While teachers are preparing students for their future educational and labor market opportunities, they also prepare them for their roles in civic life. Part of this process is instilling in students the importance of voting and participating in the political realm, but another part is instilling in them certain codes of conduct and disciplining them to abide by these codes. This aspect of education is often referred to as the "hidden curriculum" in school, a curriculum that reinforces societal norms for behavior through a system of discipline and rewards (Apple 1971). Students who adhere to the classroom rules are rewarded with higher grades and praise, whereas students who resist the institutional structures are disciplined with low grades, detention, suspension or expulsion. Some research has found that negative experiences with school authority in adolescence can affect trust in institutions and reports of voting in early adulthood (Bruch and Soss 2016, 2018). Relatedly, research has found that students in lower-level coursework in high school, often characterized with more stringent discipline policies, are less likely to report voting in early adulthood (Hoskins and Janmaat 2016; Janmaat et al. 2014). One

explanation for this is that relations students have with authority figures in high school shape their trust with institutions across their lives, including in the political realm.

In this paper, I examine the relationship between teachers' perceptions of students' conformity to school rules – including their level of effort and how much they like school – and their later voting. I also consider students' schooling experiences, including their skills, course-taking, and educational attainment, along with their participation in activities outside of the classroom. Participating or leading extracurricular activities can provide opportunities to build strong relationships with authority figures outside of the classroom (Stanton-Salazar 2001), and research has found that participation in school clubs increases students' likelihood of voting early in life (Frisco et al. 2004; Glanville 1999). One over-arching question is whether teachers' perceptions are accurately assessing students' potential and conformity, or making biased assumptions through their limited contact with students that can place students on different pathways. Although I cannot fully disentangle these possibilities, I expect that teachers' perceptions of students' potential and conformity will be directly related to voting in midlife.

My research questions are:

1. Are teachers' perceptions of students' potential and conformity related to individuals' voting in midlife?
2. How are these perceptions related to students' background, skills, civic participation, course-taking, and educational attainment?
3. Do teachers' perceptions of students' potential and conformity directly predict voting in midlife, or operate through students' background, civic participation, skills, course-taking, and educational attainment?

Data and Measures

The dataset for this project is High School & Beyond (HS&B), a nationally-representative sample of high school sophomores and seniors in 1980 who were followed through early adulthood. The original base year sample included about 60,000 sophomores and seniors within 1,000 schools. A nationally representative subsample of about 15,000 sophomores and 13,000 seniors was selected as a panel and followed up in 1982, 1984, 1986, and 1992 (only for sophomores). The HS&B data also includes test scores and high school. My colleagues matched this sample into Catalist, a national database of voting records, as described in Chapter 2.

My sample is further restricted through the teacher data. Schools that participated in the HS&B survey were given packets during the base year (1980) to distribute to their teachers about the sophomore and senior student sample members in the school. Teachers were asked if they knew the student and had the student in their class within the last year. If so, they were asked to give their perceptions about the students. Only about 60% of schools participated in the teacher surveys. I restrict my sample to 9,880 sophomores and seniors with Catalist matched data and with at least one teacher report, excluding sophomores who left high school before senior year. I discuss implications of this sample selection in the analytic section.

Measures

Voting in Midlife: I include two outcome measures to understand political participation in midlife. First, I investigate the *number of times individuals voted in midlife*, including primary and general elections in 2010, 2012, 2014, and 2016, when individuals were around age 45 through 52. This measure depicts the level of political participation throughout midlife from 0,

voted in no elections, to 8, voted in every election. Second, I predict whether the individual *voted in the 2016 presidential election*, the election with the highest voter turnout rate for this cohort. This measure examines the likelihood of an individual voting in one specific, highly contested election.

Teachers' Perceptions of Students: I measure teachers' perceptions of students from the teacher survey. Students in my sample had between one and 15 teachers answer questions about them, with an average of three teacher reports per student. My measures consider whether at least one teacher answered yes to the questions posed.

I measure teachers' perceptions of *students' college potential* through teachers' responses to whether they think the student will go to college.

I measure teachers' perceptions of *students' conformity to school structures* through teachers' responses to whether they think the student is working up to their potential and whether they think the student dislikes school. Note that this last question goes in the opposite direction of the previous ones (a positive response suggests a negative perception of the student).

I also created measures of the average of teacher responses, whether all teachers answered yes, and the count of the number of teachers answering yes, and the findings are similar. I chose to use the measure of having at least one teacher answer yes to show that even one teacher can be influential. Since students have different probabilities of a teacher answering yes according to the number of teacher reports available, I control on the number of teacher reports per student in all analyses.

Schooling Experiences: I consider four schooling experiences that may be related to both teachers' perceptions of students and their voting behavior. I measure students' *skills* through

their test scores in math and reading and locus of control during their senior year of high school. I measure students' *civic participation* through whether they held a club leadership position and the number of clubs they participated in during their senior year. I measure students' *course-taking* through their senior year curricular track location: general, academic or vocational. And, finally, I consider *educational attainment* as reported by students' degrees received by early adulthood (1986).

Controls: I condition on *background measures* to isolate the association between teachers' opinions about students and their midlife voting. These measures include student reports of parents' education level, family income, home ownership, family structure, parents' occupations, race, gender, cohort, and whether the student had a political affiliation in the base year of the survey.

Analytic Plan

I perform my analyses in three steps to understand the relationship between teachers' perceptions of students and their voting in midlife. The first two steps are descriptive. I analyze differences in students' background and high school experiences according to whether or not they voted in midlife (Table 5.1) and whether teachers had positive or negative perceptions of them (Table 5.2). Then, I perform separate regression models predicting voting in midlife with each type of teacher perception. All models control on student background and the number of teacher reports available. Then, I introduce students' skills, civic participation, course-taking, and educational attainment in four separate models to understand how these experiences with education may explain the relationship between teachers' perceptions of students and their midlife voting. My final model controls on all of these factors to understand the far-reaching

effects of teachers' perceptions of students on voting in midlife. I report logistic regression results as average marginal effects (AMEs) to be able to compare the change in probability of voting between students with positive and negative teacher perceptions across models.

For all analyses, I use multiple imputations for missing data on independent variables. To ensure that the findings from this project will be nationally-representative, I constructed a weight to account for sample selection into Catalist and into the teacher survey sample, using a similar process as described in Chapter 2. The distributions of the sophomore and senior sample, the sample matched in Catalist, and the sample both matched in Catalist and with teacher reports are similar when this weight is applied (see Appendix Table A.4). Analyses with and without the weights show similar patterns in the relationship between teachers' perceptions of students and midlife voting.

Results

Table 5.1 displays descriptive statistics for the full sample, and by whether or not individuals voted in any elections in midlife. About 80% of the sample voted in at least one midlife general election, with about 70% voting in each presidential election and 50% voting in each midterm election. The second section of the table displays teachers' perceptions of students who did and did not vote. On average, the majority of students had at least one teacher with a positive perception of their ability and behavior. However, individuals who did not vote in midlife were less likely to have a teacher say something positive about them in high school. The gap between voters and nonvoters is largest for teachers' perceptions of going to college and smallest for teachers' reporting students are working up to their potential. Less than 60% of individuals who didn't vote in midlife had at least one teacher who thought they could go to

college, compared with over 70% for those who voted in midlife. For the measures of students' conformity, 80% of individuals who voted in midlife had at least one teacher say they were working up to their potential, compared to only about 70% of individuals who didn't vote in midlife. Almost half of nonvoters had a teacher claim they did not like school, compared with about 35% of voters. These bivariate statistics suggest that teachers' perceptions of students' potential and conformity are related to midlife voting. However, gaps between voters and nonvoters in family background, civic participation, skills, course-taking or educational attainment may explain all or part of these gaps.

Table 5.1: Weighted descriptive statistics of full sample and by midlife voting

	Full Sample	Didn't Vote	Voted
N	9,880	1,620	8,260
Voting in Midlife	%/Mean	%/Mean	%/Mean
<i>Voted in any General Election</i>			
No	19.00%	100.00%	0%
Yes	81.00%	0%	100.00%
<i>Voted in 2010</i>			
No	49.40%	100.00%	37.60%
Yes	50.60%	0%	62.40%
<i>Voted in 2012</i>			
No	31.20%	100.00%	15.10%
Yes	68.80%	0%	84.90%
<i>Voted in 2014</i>			
No	52.60%	100.00%	41.50%
Yes	47.40%	0%	58.50%
<i>Voted in 2016</i>			
No	28.00%	100.00%	11.10%
Yes	72.00%	0%	88.90%
Teachers' Perceptions			
Number of Teacher Reports	3.13 (1.98)	2.98 (2.01)	3.16 (1.97)
<i>Will Probably go to College</i>			
All teachers said no	31.50%	43.50%	28.70%
At least one teacher said yes	68.50%	56.50%	71.30%
<i>Is Working Up to Potential</i>			
All teachers said no	21.10%	27.70%	19.60%
At least one teacher said yes	78.90%	72.30%	80.40%
<i>Seems to Dislike School</i>			
All teachers said no	62.80%	52.80%	65.10%
At least one teacher said yes	37.20%	47.20%	34.90%
Background			
<i>Class</i>			
Sophomore	51.40%	55.80%	50.40%
Senior	48.60%	44.20%	49.60%
<i>Sex</i>			
Female	51.40%	48.90%	52.00%
Male	48.60%	51.10%	48.00%

Table 5.1 [cont.]	Full Sample	Didn't Vote	Voted
<i>Race</i>	%/Mean	%/Mean	%/Mean
White	74.10%	68.40%	75.40%
Black	11.40%	12.90%	11.10%
Hispanic	10.40%	13.70%	9.60%
Asian	1.40%	1.40%	1.40%
Other	0.80%	1.70%	0.60%
<i>Parents' Education</i>			
Less than High School	12.20%	16.60%	11.20%
High School	32.70%	37.70%	31.50%
Some College	30.50%	30.50%	30.50%
Bachelor's Plus	24.60%	15.10%	26.80%
<i>Family Income</i>	22002.65 (11289.75)	20733.45 (10543.41)	22300.46 (11438.14)
<i>Family Owns Home</i>			
Yes	79.20%	75.50%	80.10%
No	20.80%	24.50%	19.90%
<i>Lives with Both Parents</i>			
Yes	71.20%	69.70%	71.60%
No	28.80%	30.30%	28.40%
<i>Immigrant Status</i>			
Born Outside USA	95.60%	94.80%	95.80%
Born in the USA	4.40%	5.20%	4.20%
<i>Parent Immigrant Status</i>			
No Immigrant Parents	86.10%	85.60%	86.20%
At least one Immigrant Parent	13.90%	14.40%	13.80%
<i>Fathers' Occupation</i>			
Not Employed	11.60%	12.20%	11.50%
Professional	20.20%	18.60%	20.60%
Managerial	12.00%	8.40%	12.90%
Routine Nonmanual	12.30%	13.40%	12.00%
Skilled Manual	30.70%	34.40%	29.90%
Unskilled	13.10%	13.00%	13.20%
<i>Mother Works Out of Home</i>			
No	22.00%	22.90%	21.80%
Yes	78.00%	77.10%	78.20%

Table 5.1 [cont.]	Full Sample	Didn't Vote	Voted
<i>Political Party</i>	%/Mean	%/Mean	%/Mean
Has an Affiliation	57.60%	46.40%	60.20%
None/Don't Know	42.40%	53.60%	39.80%
<i>School Type</i>			
Public	89.90%	93.00%	89.20%
Catholic	6.90%	5.20%	7.30%
Private	3.20%	1.90%	3.50%
Skills			
<i>Locus of Control</i>	0.02 (1.01)	-0.11 (1.05)	0.05 (1.00)
<i>Math Test Score</i>	19.84 (7.41)	17.94 (6.95)	20.28 (7.44)
<i>Verbal Test Score</i>	23.36 (8.52)	20.72 (7.89)	23.98 (8.54)
Civic Participation			
Number of Clubs	3.06 (2.46)	2.66 (2.41)	3.16 (2.46)
<i>Club Leader</i>			
No	54.60%	62.50%	52.80%
Yes	45.40%	37.50%	47.20%
Course-taking			
General	35.80%	42.40%	34.20%
College Prep	37.70%	26.40%	40.40%
Vocational	26.50%	31.20%	25.40%
Highest Degree Earned			
High School or below	57.20%	69.10%	54.50%
Some College	20.00%	21.80%	19.60%
Bachelor's Degree	20.30%	8.40%	23.00%
Grad/Professional	2.50%	0.60%	2.90%

Table 5.2 displays the midlife voting, background, and educational experiences by teachers' perceptions of students' potential and conformity. On average, about 80% of individuals with positive responses voted in midlife, compared with only about 70% of those with negative responses to both kinds of questions. The teachers' perceptions of potential and conformity are also related to each other. For example, less than half of students with at least one teacher who claimed they dislike school also had a teacher say they would go to college, whereas more than three quarters of students with at least one teacher say they are working up to their potential also had a teacher claim they will go to college. Teacher perceptions are also highly related to students' background characteristics. About 60% of students with at least one teacher who claimed they would go to college had a parent who went to college. White students in general are rated more favorably than black or Hispanic students.

Schooling experiences are also linked to teachers' perceptions of students. Students with at least one teacher who thought they would go to college had higher skills and civic participation, and were more likely to be in the college prep track or go to college than students without any teachers who thought they had to potential to go to college. There is also a gap in skills, course-taking, civic participation, and educational attainment for teachers' perceptions of students' conformity, but it is smaller than the gap by college potential. These descriptive results suggest that, although teachers' perceptions of students are linked to their midlife voting, teachers' perceptions are also related to student background, civic participation, skills, course-taking and educational attainment. Next, I will estimate the predictive power of these teacher perceptions when considering background and educational factors.

Table 5.2: Characteristics of students with different teacher perceptions

	Will probably go to college		Is working up to potential		Seems to dislike school	
	No 32%	Yes 69%	No 21%	Yes 79%	No 63%	Yes 37%
Voting in Midlife						
Voted in any General Election	%/Mean	%/Mean	%/Mean	%/Mean	%/Mean	%/Mean
No	26%	16%	25%	17%	16%	24%
Yes	74%	84%	75%	83%	84%	76%
Voted in 2010						
No	60%	45%	58%	47%	46%	56%
Yes	40%	55%	42%	53%	54%	45%
Voted in 2012						
No	40%	27%	38%	29%	27%	38%
Yes	60%	73%	62%	71%	73%	62%
Voted in 2014						
No	63%	48%	60%	51%	49%	58%
Yes	37%	52%	40%	49%	51%	42%
Voted in 2016						
No	38%	24%	35%	26%	25%	33%
Yes	63%	76%	65%	74%	75%	67%
Teachers' Perceptions						
# of Reports	2.46 (1.72)	3.43 (2.01)	2.14 (1.58)	3.39 (1.99)	2.93 (1.96)	3.45 (1.97)
<i>Has the Ability to go to College</i>						
No	100%	0%	61%	24%	20%	50%
Yes	0%	100%	39%	76%	80%	50%
<i>Is Working Up to Potential</i>						
No	41%	12%	100%	0%	13%	36%
Yes	59%	88%	0%	100%	88%	64%
<i>Dislikes School</i>						
No	41%	73%	37%	70%	100%	0%
Yes	59%	27%	63%	30%	0%	100%

Table 5.2 [cont.]

	Will probably go to college		Is working up to potential		Seems to dislike school	
	No	Yes	No	Yes	No	Yes
Background						
<i>Class</i>						
Sophomore	55%	50%	51%	52%	52%	51%
Senior	45%	50%	49%	48%	48%	49%
<i>Sex</i>						
Female	46%	54%	40%	55%	55%	46%
Male	54%	46%	61%	46%	45%	54%
<i>Race</i>						
White	65%	78%	71%	75%	76%	71%
Black	15%	10%	14%	11%	11%	13%
Hispanic	16%	8%	13%	10%	9%	12%
Asian	0%	2%	0%	2%	2%	1%
Other	1%	1%	1%	1%	1%	1%
<i>Parents' Education</i>						
> High School	19%	9%	14%	12%	12%	14%
High School	41%	29%	34%	32%	31%	36%
Some College	29%	31%	32%	30%	30%	32%
Bachelor's Plus	11%	31%	21%	26%	28%	19%
<i>Family Income</i>	19797	23017	22178	21956	22032	21953
	(10651)	(11431)	(11693)	(11180)	(11213)	(11419)
<i>Family Owns Home</i>						
Yes	74%	82%	76%	80%	80%	77%
No	26%	18%	24%	20%	20%	23%
<i>Lives with Both Parents</i>						
Yes	66%	74%	67%	72%	73%	68%
No	34%	26%	33%	28%	27%	32%
<i>Immigrant Status</i>						
Born Outside USA	96%	95%	96%	96%	96%	96%
Born in the USA	4%	5%	4%	4%	5%	4%

Table 5.2 [cont.]

	Will probably go to college		Is working up to potential		Seems to dislike school	
	No	Yes	No	Yes	No	Yes
<i>Parent Immigrant Status</i>						
None	86%	86%	85%	86%	86%	87%
At least one	14%	14%	15%	14%	14%	14%
<i>Fathers' Occupation</i>						
Not Employed	12%	11%	12%	11%	11%	12%
Professional	15%	23%	20%	20%	22%	18%
Managerial	7%	14%	12%	12%	13%	11%
Routine Nonmanual	11%	13%	13%	12%	13%	12%
Skilled Manual	38%	27%	32%	30%	29%	34%
Unskilled	17%	12%	11%	14%	13%	14%
<i>Mother Works Out of Home</i>						
No	23%	21%	21%	22%	22%	22%
Yes	77%	79%	79%	78%	78%	78%
<i>Political Party</i>						
Has an Affiliation	49%	61%	57%	58%	59%	55%
None/Don't Know	51%	39%	43%	42%	41%	45%
<i>School Type</i>						
Public	95%	88%	90%	90%	89%	91%
Catholic	4%	8%	6%	7%	7%	7%
Private	1%	4%	4%	3%	4%	2%
Skills	Mean	Mean	Mean	Mean	Mean	Mean
<i>Locus of Control</i>						
	-0.26	0.15	-0.08	0.05	0.09	-0.09
	(1.04)	(0.97)	(1.01)	(1.01)	(1.00)	(1.02)
<i>Math Test Score</i>						
	16.33	21.45	18.06	20.31	20.94	17.98
	(6.42)	(7.28)	(6.86)	(7.48)	(7.46)	(6.94)
<i>Verbal Test Score</i>						
	19.10	25.32	21.80	23.78	24.43	21.55
	(7.42)	(8.27)	(8.16)	(8.56)	(8.62)	(8.03)
<i># of Clubs</i>						
	2.39	3.37	2.72	3.16	3.30	2.67
	(2.23)	(2.49)	(2.36)	(2.47)	(2.47)	(2.37)

Table 5.2 [cont.]

	Will probably go to college		Is working up to potential		Seems to dislike school	
	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
<hr/>						
<i>Club Leader</i>						
No	67%	49%	60%	53%	51%	61%
Yes	33%	51%	41%	47%	49%	39%
Track						
General	45%	32%	45%	33%	32%	43%
College Prep	15%	48%	26%	41%	45%	26%
Vocational	41%	20%	29%	26%	23%	32%
Highest Degree Earned						
High School or below	76%	49%	72%	53%	50%	69%
Some College	21%	20%	19%	20%	19%	21%
Bachelor's Degree	3%	28%	8%	24%	27%	9%
Graduate	0%	4%	1%	3%	4%	1%
<hr/>						

Table 5.3 presents AMEs from separate logistic regressions predicting voting in the 2016 presidential election in midlife for each measure of teacher perceptions. All models control on background characteristics and the number of teacher reports per student, and each subsequent model adds another possible explanation for the link: skills, civic participation, course-taking, and educational attainment. In model 1, controlling on background characteristics, all teacher perceptions of students are significantly related to voting in midlife. Students with at least one teacher who thought they were going to go college have, on average, a 10 percentage point higher probability of voting in midlife compared with students without any teachers who thought they had college potential. Students with at least one teacher who thought they were working up to their potential have, on average, a 7 percentage point higher probability of voting in midlife. Similarly, students with at least one teacher who claimed they disliked school on average have a 7 percentage point lower probability of voting in midlife compared to students with teachers who all claimed they liked school. Despite gaps in teachers' perceptions by students' background, teachers' perceptions of students' potential and conformity are still linked to voting in midlife.

The next four models assess how much of these relationships can be explained by experiences during school – including students' skills, civic participation, and course-taking – and after school, including students' educational attainment. In all, none of these factors fully explain the relationship between teachers' perceptions of students and their midlife voting. The factor with the most explanatory power for teachers' perceptions of students' likelihood of going to college is students' skills, which explains about 32% of the AME from model 1. For teachers' perceptions of students' conformity, educational attainment explains the most, at about 30% of the AME from model 1.

Table 5.3: Average marginal effects from logistic regressions predicting voting in the 2016 presidential election in midlife by teachers' perceptions of students

N=9,880	1	2	3	4	5	6
<i>Will Probably Go to College</i>	0.101***	0.0688***	0.0955***	0.0893***	0.0734***	0.0543**
[Ref. Won't go to college]	(0.0179)	(0.0180)	(0.0182)	(0.0185)	(0.0177)	(0.0180)
<i>Is Working Up to Potential</i>	0.0751**	0.0607**	0.0714**	0.0664**	0.0535*	0.0459*
[ref. Is not working up to potential]	(0.0232)	(0.0224)	(0.0231)	(0.0235)	(0.0226)	(0.0221)
<i>Seems to Dislike School</i>	-0.0787***	-0.0597***	-0.0739***	-0.0689***	-0.0534***	-0.0425**
[ref. Seems to like school]	(0.0159)	(0.0159)	(0.0166)	(0.0160)	(0.0160)	(0.0163)
Controls						
Background	Yes	Yes	Yes	Yes	Yes	Yes
Skills	No	Yes	No	No	No	Yes
Civic Participation	No	No	Yes	No	No	Yes
Course-taking	No	No	No	Yes	No	Yes
Degree Attainment	No	No	No	No	Yes	Yes

Note: Background controls include race, sex, cohort, parents' education, family home ownership, parents' occupation, family structure, individual and parental immigrant status, family income, school type, and political party. Skills controls include locus of control, math test scores and verbal test scores. Civic participation controls include club participation and club leadership. All models control for the number of teacher reports by student and include a Weight to consider selection into the voting sample and sample of students with teacher reports. Standard errors are clustered at the school level. * p<.05, **p<.01, and *** p<.001.

Table 5.4: OLS regressions predicting number of votes in midlife by teachers' perceptions of students

N=9,880	1	2	3	4	5	6
<i>Will Probably Go to College</i>	0.703***	0.508***	0.660***	0.622***	0.533***	0.408***
[Ref. Won't go to college]	(0.0893)	(0.0933)	(0.0905)	(0.0941)	(0.0917)	(0.0955)
<i>Is Working Up to Potential</i>	0.546***	0.454***	0.520***	0.484***	0.407***	0.350***
[ref. Is not working up to potential]	(0.103)	(0.102)	(0.103)	(0.107)	(0.104)	(0.104)
<i>Seems to Dislike School</i>	-0.532***	-0.408***	-0.495***	-0.459***	-0.367***	-0.288**
[ref. Seems to like school]	(0.0834)	(0.0834)	(0.0869)	(0.0854)	(0.0864)	(0.0880)
Controls						
Background	Yes	Yes	Yes	Yes	Yes	Yes
Skills	No	Yes	No	No	No	Yes
Civic Participation	No	No	Yes	No	No	Yes
Course-taking	No	No	No	Yes	No	Yes
Degree Attainment	No	No	No	No	Yes	Yes

Note: Background controls include race, sex, cohort, parents' education, family home ownership, parents' occupation, family structure, individual and parental immigrant status, family income, school type, and political party. Skills controls include locus of control, math test scores and verbal test scores. Civic participation controls include club participation and club leadership. All models control for the number of teacher reports by student and include a Weight to consider selection into the voting sample and sample of students with teacher reports. Standard errors are clustered at the school level. * p<.05, **p<.01, and *** p<.001

In combination, the educational factors measured do not explain the significant relationship between teachers' perceptions of students' likelihood of going to college and voting in midlife in model 6. Even when controlling on background, civic participation, skills, course-taking, and educational attainment, students with at least one teacher who thought they were working up to their potential have, on average, a 5 percentage point higher probability of voting in midlife than those without teachers who thought they were working up to their potential. Similarly, students with at least one teacher who claimed they disliked school have, on average, a 4 percentage point lower probability of voting in midlife compared to those with teachers who thought they liked school.

Table 5.4 displays a similar pattern for the number of times an individual voted in midlife. In model 1, students with positive teacher perceptions voted between half and three-quarters more times in midlife than those with negative teacher perceptions. Even when considering background, skills, civic participation, course-taking and educational attainment in model 6, these factors still significantly predict voting in midlife. Students with at least one teacher who thought they disliked school voted about a quarter fewer times than those who didn't have teachers with this negative perception. Teachers' perceptions of students' college potential has the strongest relationship with voting in midlife. These findings suggest that teachers' perceptions of students' conformity to school structures, as measured by working up to potential and disliking school, predict voting in midlife, even when considering background and educational processes from before and after high school.

Conclusion

Schools are important institutions for the development of citizenship skills in the population. Who does and does not vote in the U.S. is largely related to individuals' level of educational attainment. Education has the potential both to boost individuals' labor market potential, which lowers the costs associated with voting, and to instill in individuals the importance of conforming to the social order of the country, which increases one's chances of voting. High school is a critical period for the development of skills, identities and aspirations related to one's future educational and labor market trajectories, and it may be a site for civic development as well. In this chapter, I examined how high school teachers' perceptions of students' college potential and conformity to school norms are related to their long-term voting patterns. I argue that relationships with teachers can both reproduce and disrupt patterns of inequality through daily interactions with students and students' schooling experiences.

I find that teachers' perceptions of students' potential and conformity are related to voting in midlife. These findings suggest that teachers' perceptions of students may signal more than just students' own demeanor and skills and may have important long-lasting effects on students' relationships with authority and civic development.

Schools have long been thought of as institutions that prepare individual to be productive citizens, which entails both learning the skills necessary to succeed in the labor market and understanding the importance of participating in the community and in a democracy. However, the unequal organization of the labor market suggests stratification in the skills students learn, and this in turn can affect their civic participation. This chapter investigated how one aspect of high school – teachers' perceptions of students' potential and conformity – is related to their

long-term voting behavior, and finds that students with teachers who do not believe they have the potential for college or are conforming to the social order of the school are less likely to vote. This relationship may indicate resistance to discipline and control in schools that translate into authority relations in greater society. Students with teachers who believe they dislike school or are not working hard enough may be more likely to resist other sources of control in their lives.

Much of the current research on schools and civic development focus on a deficit model, which suggests individuals don't participate in activities and/or vote because they lack the skills, resources, or desires to actively participate in politics. However, this project uses a relational model, borrowing from Bruch and Soss (2016; 2018), which examines how power relations with authority figures, such as teachers, socialize some individuals into active participation in society and others into avoidance of institutions. This chapter was the first step in examining how teachers may shape individuals' voting trajectories through midlife, but future research could examine more aspects of the teacher-student relationship to understand if high schools are a site for civic development and how teachers may play a role in disrupting and reproducing political inequality.

Chapter 6: The Role of Education in Sustaining a Nonrepresentative Democracy

A large portion of the U.S. population does not vote. Researchers have puzzled through this lack of political engagement for decades, finding that social status in general, and educational attainment in particular, are the largest predictors of voting in each election. Voter suppression tactics, such as voter identification laws, inadequate number of polling locations, felony disenfranchisement, and other barriers to participation, contribute to these gaps in voting, but whether people believe their voice matters in politics may be even more important than these barriers. At its core, voting is an opportunity for individuals to tell the government what to do. Negative experiences within institutions may cause individuals to disengage from the political process because they do not feel valued or empowered within institutional structures. Those who have positive relations with authority figures and who have had opportunities to actively engage with those in positions of power may be more likely to exercise their right to vote. In this dissertation, I argue that higher levels of education are associated with more empowering experiences within educational institutions, which can impact individuals' likelihood of voting.

As individuals progress through schooling and gain more knowledge and skills, they are often given more opportunities to be an active part of their own learning. The traditional approach to teaching at the secondary level is top-down; teachers instruct students on what to do and how to do it, and students regurgitate information on tests. In postsecondary education, instruction generally starts the same way, in large lectures to teach introductory courses. Yet, as students progress, they are asked more and more to critically analyze the material, to question the professor, and to participate in driving their own learning. In graduate school, students learn to use materials they are learning and combine them in creative ways to build new ways of

thinking. In the end, students transform into the teachers, creating their own knowledge to then pass onto students. With each step up the higher education ladder, the top-down relationship between teachers and students gradually changes, empowering students to use their own voice and to have more equitable relations with those in positions of power. This gradual increase in empowerment is mirrored by the increases in voting associated with higher levels of education. Receiving higher levels of education may thus better prepare individuals for the relationship with authority figures that occurs through voting.

College appears to be a critical point in this juncture. Indeed, Chapter 3 of this dissertation finds that going to college within two years of high school causes individuals to vote more often across the life course. Although part of the relationship operates through postsecondary degree attainment and voting in early adulthood, just going to college improves voting. These findings cannot address why going to college effects voting, but the findings are consistent with the idea that college-going and receiving higher level degrees improves individual empowerment in a way that support higher rates of voting across the life course. That early college entry has such a long-term, significant impact on voting into midlife may suggest that having empowering experiences during the transition to adulthood may be particularly important for improving voter turnout.

As adolescents approach voting eligible age, they develop the identities and dispositions they will take with them into adulthood. The top-down authority relations in high school may not adequately prepare students for their role as citizens, telling authority figures what to do through voting. However, there is variation in authority relations in high school that may prepare some students for political engagement more than others. As I find in Chapter 4, students who have

leadership positions are more likely to vote in midlife, even conditioning on their educational attainment and voting in early adulthood. Leadership positions, especially in clubs that mirror what civics participation look like, give students opportunities for public speaking, organizing meetings, running problem solving activities, and working collaboratively with a group towards a shared goal. These positions not only rank students as above their peers, giving them opportunities to be at the top of the power relations, but they can also include more equitable relationships with teachers, who they may need to work with to organize their club activities. Research has previously shown the importance of club participation and leadership for voting in early adulthood, but I extend these findings to show the potential long-term impact of empowerment through leadership positions on voting in midlife.

One of the goals of education is to prepare students to be engaged citizens, but often this goal takes the backseat to preparation for college and the labor market. In high school, students are sorted into different levels of coursework that prepare them for their potential post high school plans—into the workforce or into college—and the classroom environments for students on these divergent pathways have different opportunities for empowerment. Those in advanced, college preparatory courses are taught in environments that give students more autonomy, ask them to be active parts of their learning, and give them space to exercise their creativity. The teacher-student relations within these environments are more equitable, which may better prepare students to engage in politics. Those in general or vocational courses are taught in environments that emphasize discipline, conformity, and passivity, which reinforces the lower rank of students in comparison to teachers and disempowers them from using their voice to speak to those in positions of power. I do find in Chapter 4 that students who took honors courses in high school

are more likely to vote later in life, even considering their pathways into college after high school. Opportunities for empowerment in the classroom appear to be important for developing engaged citizens.

Discipline in schools can also teach students to keep their voices silent in the face of authority figures. Research has found that discipline has negative effects on students' academic outcomes, and some research has linked school suspension to voting in early adulthood. The disempowerment that comes from being disciplined in schools may keep students from engaging in politics across their lives. In fact, I find in Chapter 4 that students who were disciplined are less likely to vote in midlife. Discipline is often discussed as an essential part of schooling, socializing students into respecting authority figures so they listen and obey in the classroom. Some do suggest that schools with higher levels of discipline have higher test scores, but disempowering students to be able to regurgitate information on tests does not prepare them to be engaged citizens.

In my last Chapter, I dive deeper into relations between teachers and students to understand an essential mechanism in the reproduction of social inequality in schools. Teachers form opinions about their students from the limited information they gain through classroom interactions, interactions with parents, and students' academic performance. These perceptions of students may be less tied to students' actual identities, dispositions, and skills, and more tied to biases held by teachers. These perceptions can be hard to change, and can reproduce inequality by limiting students' opportunities to learn. A teacher that views a student as a jock may not recommend them for honors courses, despite high abilities. A student who behaves well in school and obeys the teacher may be perceived of as intelligent and deserving of advanced

course-taking and leadership, despite low abilities. These perceptions teachers have of students direct the daily interactions they have in the classroom—how much help they give the student, how they respond to their questions, how they react to their behavior, and how they grade them. I find that positive teacher perceptions of students’ potential to go to college and effort positively predict voting later in life, even when conditioning on students’ schooling experiences. Negative perceptions of how much students like school, which could be interpreted as how much they like their teachers, negatively predict voting in midlife. These patterns suggest that teachers’ opinions about students may feed into whether teachers empower students and treat them as valued and equal or disempower students and limit their future potential.

One major implication of this research is that adolescence is a formative period of political development. Life course theory often highlights adolescence as an important period for one’s development in general, especially for the dispositions and skills one has as they transition to adulthood, but few studies have examined the long-term association between adolescent experiences and midlife actions. Other research has found that skills and course-taking in adolescence are related to long-term health and labor market outcomes (Carroll et al. 2017), but research on political outcomes does not often take as wide of a lens of study. The pattern often discussed is that adolescent experiences predict voting in early adulthood and those that vote in early adulthood are more likely to vote across their lives. However, young adults have much lower rates of voting than adults later in life. In fact, the rate of voting in the first two presidential elections this cohort was eligible for was about 20 percentage points less than the rate of voting in the presidential elections in midlife (McDonald 2018). Part of this change may be related to mortality, but attrition due to mortality for HS&B is quite small (<5%) because risk

of mortality increases past midlife (Warren et al. 2017). There are many reasons why young adults do not vote as often as midlife adults—they are less connected to a community, they might not have financial interest in voting, they are less interested in politics, or they have little power over their lives.

Thus, early adulthood may be too soon to examine the importance of adolescence on life course political development. The effects of adolescent (dis)empowering experiences on an uncommon outcome (voting in early adulthood) versus a common outcome (voting in midlife) may operate through different mechanisms. I argue that adolescence is an integral period in one's political development, and that power relations established within institutions during this period shape political involvement across the life course. Estimating this association for midlife individuals, who take up one-third of the electorate and vote more often, gives us a broader view of the long-term relationship between inequality in adolescence and inequality in our electorate.

Given that adolescence is a critical period for the development of one's political engagement, policy aiming to increase voter turnout may need to start early in the life course. Policy conversations within education over the past several decades have all but ignored the civic goals of education. Since the publication of *A Nation at Risk*, after the cohort investigated in this dissertation graduated from high school, policy makers and education scholars worked to improve the math and preparation of students to increase the amount of skilled workers available to support our country's economic development. In the past year, conversations about civics education have proliferated, and state legislatures have debated the best way to increase students' civics course-taking opportunities and civic knowledge. For example, in Texas—the state with the second lowest voter turnout in the 2016 presidential election—social studies coursework has

the least number of requirements of any subject, and civics is not mentioned in the education code. This legislative session, there are three different initiatives to improve civics education. More civics electives, more civics tests, and project-based civics learning are all commendable goals to improve civics education in Texas, but my findings suggest that one must look at the entire schooling experience to understand how to prepare students to be engaged citizens.

Inequality in the (dis)empowering experiences that I find predict voting is embedded within the structure of educational institutions; offering students leadership positions, separating students into honors and general courses, and disciplining students are commonplace in schools. Although some education scholars and policymakers are working towards decreasing inequality in course-taking levels and in school suspensions, separating students into different levels of courses and disciplining students may always be a part of education. Thus, changing the unequal patterns of voting related to these (dis)empowering experiences may require an overhaul of the education system and what we think of as schooling. Unfortunately, the individuals who vote, who run for office, who study education, and who are active in politics are overwhelmingly people who excelled within the current education system. The motivation to change educational institutions may lie in those who have been failed by them and who are rarely at the table. Increasing access to higher education and diversity within bachelor's degree recipients, may eventually reach a critical point where those who are empowered to voice their opinions to those in positions of power are demanding radical change. Until then, the hierarchies embedded within schools will continue to produce power relations that limit the political participation of some, and empower others.

With some of the lowest rates of voter turnout among advanced democracies, the United States does not have an electorate that is representative of the diversity of identities, thoughts, needs, and hopes of the population. My findings suggest that patterns of voting inequality in midlife may have started in adolescence, when most students are searching for autonomy, respect, and freedom but only some are given opportunities for empowerment, while others are disempowered. My paper suggests that decreasing inequality in empowering experiences in adolescence may be the answer to engaging more individuals to participate in a more equal electorate.

Appendix

Table A.1: Descriptive statistics of the sophomore cohort members and whether they were matched in Catalist.

	Full Sample		Unmatched Sample		Matched Sample			Weighted Matched Sample	
	N=14,830		N=5,220		N=9,610		Sig.	N=9,610	
Demographics									
Sex									
Female	50.30%		59.00%		45.50%		***	50.40%	
Male	49.70%		41.00%		54.50%			49.60%	
Race									
White	70.00%		64.90%		72.80%			70.00%	
Black	12.20%		12.60%		12.00%		***	12.40%	
Hispanic	12.60%		14.40%		11.60%		***	12.70%	
Asian	1.20%		1.40%		1.10%		*	1.20%	
American Indian	1.30%		1.90%		0.90%		***	1.30%	
Other	2.70%		4.80%		1.60%		***	2.40%	
Parents' Education									
Less than High School	12.50%		14.20%		11.60%			12.40%	
High School	32.20%		31.40%		32.60%		***	32.60%	
Some College	26.10%		24.60%		26.90%		***	26.30%	
Bachelor's Plus	21.80%		19.10%		23.30%		***	21.70%	
Missing	7.40%		10.60%		5.60%		***	6.90%	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Family Income	21160.51	10870.53	20477.01	10587.68	21535.28	11005.1	***	21129.08	10826.27
Age	15.72	0.69	15.79	0.72	15.69	0.68	***	15.72	0.70

Table A.1 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
Marital Status									
Never Married	41.20%		38.70%		42.70%			41.70%	
Ever Married	46.40%		43.10%		48.20%			46.50%	
Ever Divorced	9.70%		12.80%		8.00%		***	9.30%	
Missing	2.70%		5.40%		1.20%		***	2.50%	
Marital Status and Sex									
Not Married - Female	17.20%		18.20%		16.60%			17.40%	
Not Married - Male	24.10%		20.50%		26.00%		***	24.30%	
Married - Female	25.90%		29.60%		23.90%			26.10%	
Married - Male	20.50%		13.50%		24.30%		***	20.40%	
Divorced - Female	6.10%		9.00%		4.50%		***	5.80%	
Divorced - Male	3.60%		3.80%		3.50%			3.50%	
Missing	2.70%		5.40%		1.20%		***	2.50%	
Skills Senior Year	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Locus of Control	-0.01	0.927	-0.05	0.92	0.02	0.91	***	0.00	0.93
Math Test Score	19.69	7.43	18.41	6.89	20.39	6.66	***	19.70	7.45
Verbal Test Score	22.35	7.76	21.23	7.51	22.97	7.79	***	22.36	7.77
GPA	2.83	0.65	2.80	0.63	2.84	0.66	***	2.82	0.65
Track Senior Year									
General	28.50%		27.80%		28.80%			28.50%	
College Prep	31.00%		25.00%		34.30%		***	31.20%	
Vocational	21.90%		22.00%		21.80%			22.30%	
Missing	18.60%		25.10%		15.10%		***	18.00%	
Math Course-taking									
Listed None	15.90%		16.60%		15.50%			15.90%	
Algebra 1	15.00%		15.20%		14.90%			15.30%	
Geometry	9.50%		9.10%		9.70%		**	9.70%	

Table A.1 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig	Weighted Matched Sample
Algebra 2	19.40%	17.50%	20.50%	***	19.50%
Trigonometry	13.60%	10.60%	15.20%	***	13.70%
Calculus	6.90%	4.70%	8.10%	***	6.90%
Missing	19.70%	26.30%	16.10%	***	19.10%
Political Party					
None/Don't Know	37.80%	37.60%	37.90%		38.00%
Conservative	5.60%	5.00%	6.00%		5.60%
Moderate	20.80%	18.60%	22.00%	***	20.80%
Liberal	9.90%	9.60%	10.10%	*	10.10%
Radical	3.50%	3.20%	3.70%		3.60%
Missing	22.30%	26.00%	20.30%	***	21.90%
Leader Senior Year					
No	42.90%	39.50%	44.70%		43.40%
Yes	33.90%	30.10%	36.00%	*	34.10%
Missing	23.20%	30.30%	19.30%	***	22.50%
Discipline Senior Year					
No	67.00%	60.30%	70.70%		67.60%
Yes	10.70%	10.80%	10.70%	**	10.80%
Missing	22.30%	28.90%	18.60%	***	21.60%
Trouble with Law Senior Year					
No	82.10%	78.50%	84.00%		82.50%
Yes	4.20%	4.20%	4.30%		4.10%
Missing	13.70%	17.30%	11.70%	***	13.30%
Left High School Early					
No	86.40%	81.30%	89.30%	***	86.70%
Yes	13.60%	18.70%	10.70%		13.30%

Table A.1 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig.	Weighted Matched Sample
Reported Moving in Survey					
No	36.10%	33.20%	37.60%		36.30%
Yes	51.40%	49.00%	52.70%		51.40%
Missing	12.60%	17.80%	9.70%	***	12.30%
Highest Degree Earned					
High School or below	55.80%	58.40%	54.40%		56.10%
Some College	18.60%	18.70%	18.60%		18.70%
Bachelor's Degree	18.50%	13.90%	21.10%	***	18.50%
Grad/Professional	3.70%	2.40%	4.40%	***	3.70%
Missing	3.30%	6.50%	1.60%	***	3.00%
Civic Participation in Early Adulthood					
Didn't Report Voting	37.30%	42.10%	34.60%		37.10%
Reported Voting	59.40%	51.60%	63.80%	***	59.80%
Missing	3.30%	6.40%	1.60%	***	3.10%
Didn't Report Registering	19.10%	22.70%	17.10%		19.10%
Reported Registering	77.60%	71.00%	81.30%	***	77.80%
Missing	3.30%	6.30%	1.60%	***	3.10%
Survey Participation					
Midlife Disposition					
Participated in Survey	59.80%	41.30%	69.90%		60.30%
Refusal	6.10%	7.20%	5.50%	***	6.10%
Unavailable	6.50%	8.10%	5.60%	***	6.50%
Deceased/Terminally Ill	4.70%	9.60%	2.00%	***	4.50%
Incarcerated	0.20%	0.60%	0.10%	***	0.30%
Possibly Found	17.60%	25.00%	13.50%	***	17.30%
Unlocatable	5.10%	8.30%	3.40%	***	5.00%

Table A.1 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Waves Participated In	3.60	0.84	3.45	1.01	3.69	0.71	***	3.62	0.82
Unlocatable Ever									
No	91.30%		86.90%		93.80%			91.60%	
Yes	8.70%		13.10%		6.20%		***	8.40%	
Refused Ever									
No	94.90%		94.10%		95.40%			95.10%	
Yes	5.10%		5.90%		4.60%		**	4.90%	
Unavailable Ever									
No	94.80%		93.50%		95.50%			94.90%	
Yes	5.20%		6.50%		4.50%		***	5.10%	

Note: * p<.05, **p<.01, and *** p<.001 signify significant differences between the matched and unmatched samples.

Table A.2: Descriptive statistics of the sophomore cohort members (excluding high school noncompleters) and whether they were matched in Catalist.

	Full Sample		Unmatched Sample		Matched Sample			Weighted Matched Sample	
	N=12,240		N=3,980		N=8,260		Sig.	N=8,260	
Demographics									
Sex									
Female	50.90%		61.10%		45.80%		***	51.00%	
Male	49.10%		38.90%		54.20%			49.00%	
Race									
White	71.90%		67.50%		74.10%			71.90%	
Black	11.70%		12.50%		11.40%		***	11.90%	
Hispanic	11.90%		13.40%		11.20%		***	12.10%	
Asian	1.40%		1.60%		1.20%		*	1.40%	
American Indian	1.10%		1.50%		0.90%		***	1.20%	
Other	1.90%		3.50%		1.20%		***	1.60%	
Parents' Education									
Less than High School	11.10%		12.40%		10.40%			11.10%	
High School	32.40%		31.90%		32.70%		***	33.00%	
Some College	27.00%		26.10%		27.40%		***	27.10%	
Bachelor's Plus	23.70%		21.60%		24.70%		***	23.50%	
Missing	5.80%		8.00%		4.70%		***	5.30%	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Family Income	21497.76	11252.80	20883.20	11135.10	21804.59	11299.2	***	21448.87	11195.18
Age	15.66	0.67	15.70	0.70	15.63	0.66	***	15.66	0.67

Table A.2 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
Marital Status									
Never Married	41.90%		40.00%		42.80%			41.90%	
Ever Married	47.10%		43.90%		48.80%			47.40%	
Ever Divorced	8.70%		11.40%		7.40%		***	8.70%	
Missing	2.30%		4.70%		1.10%		***	2.00%	
Marital Status and Sex									
Not Married - Female	18.00%		20.10%		17.00%			18.10%	
Not Married - Male	23.80%		19.80%		25.80%		***	23.90%	
Married - Female	26.50%		31.00%		24.30%			26.90%	
Married - Male	20.60%		12.90%		24.40%		***	20.50%	
Divorced - Female	5.40%		8.00%		4.10%		***	5.30%	
Divorced - Male	3.30%		3.40%		3.30%			3.40%	
Missing	2.30%		4.70%		1.10%		***	2.00%	
Skills Senior Year	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Locus of Control	0.04	0.92	-0.01	0.92	0.06	0.91	***	0.04	0.92
Math Test Score	20.37	7.49	19.13	6.89	20.99	7.62	***	20.37	7.51
Verbal Test Score	23.01	7.71	21.96	7.51	23.54	7.76	***	23.00	7.73
GPA	2.82	0.70	2.79	0.63	2.84	0.71	***	2.82	0.70
Track Senior Year									
General	32.90%		34.20%		32.30%			32.80%	
College Prep	35.90%		30.80%		38.50%		***	36.00%	
Vocational	25.30%		27.10%		24.40%			25.80%	
Missing	5.90%		7.90%		4.90%		***	5.50%	
Math Course-taking									
Listed None	18.40%		20.40%		17.30%			18.40%	
Algebra 1	17.30%		18.70%		16.70%			17.60%	
Geometry	11.00%		11.10%		10.90%		**	11.20%	

Table A.2 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig	Weighted Matched Sample
Algebra 2	22.50%	21.50%	23.00%	***	22.50%
Trigonometry	15.70%	13.10%	17.10%	***	15.70%
Calculus	8.00%	5.80%	9.10%	***	8.00%
Missing	7.10%	9.30%	6.00%	***	6.70%
Political Party					
None/Don't Know	38.70%	38.80%	38.60%		38.70%
Conservative	6.00%	5.50%	6.30%		6.00%
Moderate	22.20%	20.20%	23.20%	***	22.20%
Liberal	10.50%	10.50%	10.50%	*	10.60%
Radical	3.60%	3.30%	3.80%		3.70%
Missing	18.90%	21.60%	17.60%	***	18.80%
Leader Senior Year					
No	49.60%	48.60%	50.10%		50.00%
Yes	39.20%	37.10%	40.30%	*	39.40%
Missing	11.20%	14.30%	9.60%	***	10.60%
Discipline Senior Year					
No	77.50%	74.20%	79.20%		77.90%
Yes	12.40%	13.30%	12.00%	**	12.40%
Missing	10.10%	12.50%	8.80%	***	9.60%
Trouble with Law Senior Year					
No	84.30%	82.10%	85.30%		84.60%
Yes	3.40%	3.10%	3.50%		3.30%
Missing	12.30%	14.80%	11.10%	***	12.00%

Table A.2 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig.	Weighted Matched Sample
Reported Moving in Survey					
No	37.20%	34.90%	38.30%		37.30%
Yes	51.80%	49.50%	53.00%		52.00%
Missing	11.00%	15.60%	8.70%	***	10.60%
Highest Degree Earned					
High School or below	52.70%	55.10%	51.60%		53.00%
Some College	19.40%	20.30%	19.00%		19.50%
Bachelor's Degree	21.20%	16.80%	23.40%	***	21.20%
Grad/Professional	4.20%	3.00%	4.80%	***	4.30%
Missing	2.40%	4.90%	1.10%	***	2.10%
Civic Participation in Early Adulthood					
Didn't Report Voting	34.60%	38.60%	32.60%		34.60%
Reported Voting	63.00%	56.50%	66.20%	***	63.20%
Missing	2.40%	4.90%	1.20%	***	2.10%
Didn't Report Registering	17.20%	20.10%	15.70%		17.30%
Reported Registering	80.40%	75.00%	83.10%	***	80.60%
Missing	2.40%	4.90%	1.20%	***	2.10%
Survey Participation					
Midlife Disposition					
Participated in Survey	62.80%	45.20%	71.60%		63.30%
Refusal	6.30%	7.80%	5.50%	***	6.20%
Unavailable	6.30%	8.20%	5.30%	***	6.20%
Deceased/Terminally Ill	3.90%	8.30%	1.70%	***	3.90%
Incarcerated	0.20%	0.40%	0.00%	***	0.20%
Possibly Found	16.60%	23.80%	13.00%	***	16.50%
Unlocatable	3.90%	6.30%	2.80%	***	3.70%

Table A.2 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Waves Participated In	3.68	0.75	3.55	0.91	3.74	0.65	***	3.69	0.72
Unlocatable Ever									
No	93.10%		90.00%		94.70%			93.40%	
Yes	6.90%		10.00%		5.30%		***	6.60%	
Refused Ever									
No	95.30%		94.50%		95.70%			95.50%	
Yes	4.70%		5.50%		4.30%		**	4.50%	
Unavailable Ever									
No	95.30%		94.30%		95.80%			95.40%	
Yes	4.70%		5.70%		4.20%		***	4.60%	

Note: * p<.05, **p<.01, and *** p<.001 signify significant differences between the matched and unmatched samples.

Table A.3: Descriptive statistics of the senior cohort members and whether they were matched in Catalist.

	Full Sample		Unmatched Sample		Matched Sample			Weighted Matched Sample	
	N=12,000		N=3,110		N=8,890		Sig.	N=8,260	
Demographics									
Sex									
Female	51.10%		57.90%		48.80%		***	52.20%	
Male	48.90%		42.10%		51.20%			47.80%	
Race									
White	75.20%		69.60%		77.00%			75.60%	
Black	11.00%		11.80%		10.70%		***	11.10%	
Hispanic	8.80%		9.60%		8.50%		***	8.90%	
Asian	1.50%		1.70%		1.40%		*	1.50%	
American Indian	0.70%		1.10%		0.60%		***	0.70%	
Other	2.90%		6.20%		1.80%		***	2.30%	
Parents' Education									
Less than High School	11.80%		13.20%		11.30%			12.00%	
High School	30.40%		28.90%		30.90%		***	30.30%	
Some College	28.10%		28.00%		28.20%		***	28.40%	
Bachelor's Plus	24.80%		21.70%		25.90%		***	25.10%	
Missing	4.90%		8.20%		3.80%		***	4.20%	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Family Income	21709.77	9883.50	21099.11	9554.45	21909.98	9981.40	***	21666.14	9856.92
Age	17.31	0.69	17.26	0.71	17.32	0.68	***	17.31	0.68

Table A.3 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
Marital Status									
Never Married	58.50%		58.00%		58.70%			58.80%	
Ever Married	35.30%		31.30%		36.60%			35.70%	
Ever Divorced	3.30%		3.90%		3.10%		***	3.30%	
Missing	2.90%		6.90%		1.60%		***	2.20%	
Marital Status and Sex									
Not Married - Female	26.30%		31.90%		24.50%			27.30%	
Not Married - Male	32.20%		26.00%		34.20%		***	31.50%	
Married - Female	21.60%		20.00%		22.10%			22.10%	
Married - Male	13.70%		11.30%		14.50%		***	13.60%	
Divorced - Female	2.00%		2.70%		1.80%		***	2.00%	
Divorced - Male	1.30%		1.20%		1.30%			1.30%	
Missing	2.90%		6.90%		1.60%		***	2.20%	
Skills Senior Year	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Locus of Control	0.07	0.88	0.05	0.87	0.07	0.89	***	0.08	0.89
Math Test Score	19.36	5.37	18.75	5.19	19.56	5.42	***	19.35	5.39
Verbal Test Score	23.73	7.64	22.91	7.37	24.00	7.71	***	23.70	7.67
GPA	2.86	0.66	2.82	0.66	2.87	0.66	***	2.86	0.66
Track Senior Year									
General	30.70%		30.80%		30.70%			30.90%	
College Prep	32.00%		27.70%		33.40%		***	32.30%	
Vocational	20.80%		20.90%		20.80%			21.20%	
Missing	16.40%		20.60%		15.10%		***	15.50%	
Math Course-taking									
Listed None	15.30%		17.00%		14.70%			15.30%	
Algebra 1	14.30%		15.20%		14.00%			14.50%	
Geometry	11.60%		10.60%		11.90%		**	11.50%	

Table A.3 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig	Weighted Matched Sample
Algebra 2	20.70%	18.30%	21.50%	***	21.40%
Trigonometry	15.60%	13.80%	16.20%	***	15.60%
Calculus	6.90%	5.40%	7.40%	***	6.90%
Missing	15.70%	19.70%	14.40%	***	14.80%
Political Party					
None/Don't Know	28.30%	28.30%	28.30%		28.60%
Conservative	7.10%	7.20%	7.10%		7.20%
Moderate	26.50%	23.60%	27.50%	***	26.70%
Liberal	13.20%	12.00%	13.50%	*	13.60%
Radical	4.10%	3.90%	4.10%		4.00%
Missing	20.90%	25.00%	19.50%	***	20.00%
Leader Senior Year					
No	41.90%	41.10%	42.10%		42.00%
Yes	38.20%	34.50%	39.40%	*	38.80%
Missing	19.90%	24.40%	18.40%	***	19.20%
Discipline Senior Year					
No	71.10%	66.20%	72.70%		72.20%
Yes	11.10%	12.30%	10.80%	**	11.00%
Missing	17.80%	21.50%	16.60%	***	16.80%
Trouble with Law Senior Year					
No	79.10%	74.70%	80.60%		80.20%
Yes	3.20%	3.60%	3.10%		3.20%
Missing	17.60%	21.60%	16.30%	***	16.60%

Table A.3 [cont.]	Full Sample	Unmatched Sample	Matched Sample	Sig.	Weighted Matched Sample
Reported Moving in Survey					
No	31.10%	29.80%	31.60%		31.60%
Yes	54.40%	48.30%	56.40%		54.60%
Missing	14.50%	22.00%	12.10%	***	13.80%
Highest Degree Earned					
High School or below	58.50%	59.30%	58.30%		58.40%
Some College	18.80%	17.70%	19.10%		19.30%
Bachelor's Degree	19.10%	16.00%	20.20%	***	19.40%
Grad/Professional	0.70%	0.30%	0.80%	***	0.70%
Missing	2.90%	6.80%	1.60%	***	2.20%
Civic Participation in Early Adulthood					
Didn't Report Voting	29.90%	33.50%	28.70%		30.00%
Reported Voting	66.70%	58.70%	69.30%	***	67.30%
Missing	3.40%	7.70%	2.00%	***	2.70%
Didn't Report Registering	19.40%	22.00%	18.60%		19.40%
Reported Registering	77.30%	70.50%	79.50%	***	78.00%
Missing	3.30%	7.50%	1.90%	***	2.60%
Survey Participation					
Midlife Disposition					
Participated in Survey	58.70%	39.20%	65.10%		58.90%
Refusal	7.40%	7.80%	7.30%	***	7.40%
Unavailable	4.40%	3.80%	4.70%	***	4.50%
Deceased/Terminally Ill	5.10%	15.10%	1.70%	***	5.20%
Incarcerated	0.20%	0.50%	0.00%	***	0.10%
Possibly Found	18.40%	20.10%	17.80%	***	18.50%
Unlocatable	5.80%	13.50%	3.30%	***	5.50%

Table A.3 [cont.]	Full Sample		Unmatched Sample		Matched Sample		Sig.	Weighted Matched Sample	
	Mean	SD	Mean	SD	Mean	SD		Mean	SD
Waves Participated In	3.54	0.90	3.31	1.14	3.61	0.79	***	3.57	0.85
Unlocatable Ever									
No	92.00%		86.90%		93.70%			92.70%	
Yes	8.00%		13.10%		6.30%		***	7.30%	
Refused Ever									
No	93.50%		92.10%		94.00%			93.50%	
Yes	6.50%		7.90%		6.00%		**	6.50%	
Unavailable Ever									
No	92.60%		90.90%		93.10%			92.60%	
Yes	7.40%		9.10%		6.90%		***	7.40%	

Note: * p<.05, **p<.01, and *** p<.001 signify significant differences between the matched and unmatched samples.

Table A.4: Descriptive statistics of the sophomore and senior cohort members (excluding high school noncompleters) with both teacher comment and Catalist data

	Full Sample 24,240		Matched Sample 9,880		Weighted Matched Sample 9,880	
Demographics						
Sex						
Female	51.00%		52.40%		51.20%	
Male	49.00%		47.60%		48.80%	
Race						
White	73.50%		76.90%		74.00%	
Black	11.40%		10.30%		11.40%	
Hispanic	10.40%		9.90%		10.60%	
Asian	1.40%		1.10%		1.50%	
American Indian	0.90%		0.70%		0.90%	
Other	3.30%		1.80%		1.60%	
Parents' Education						
Less than High School	11.80%		11.40%		12.30%	
High School	32.40%		34.90%		33.30%	
Some College	28.40%		29.20%		29.40%	
Bachelor's Plus	25.00%		24.50%		25.00%	
	Mean	SD	Mean	SD	Mean	SD
Family Income	21796.43	11394.04	21815.74	11126.17	21695.98	11259.90
Family Owns Home						
Yes	80.10%		80.70%		80.60%	
No	19.90%		19.30%		19.40%	
Lives with Both Parents						
Yes	70.80%		72.60%		71.60%	
No	29.20%		27.40%		28.40%	

Table A.4 [cont.]	Full Sample		Matched Sample		Weighted Matched Sample	
Fathers' Occupation						
Not Employed	11.70%		11.40%		11.60%	
Professional	20.40%		19.50%		20.00%	
Managerial	12.50%		12.00%		12.20%	
Routine Nonmanual	11.60%		12.10%		11.80%	
Skilled Manual	30.80%		32.20%		31.10%	
Unskilled	13.10%		12.80%		13.30%	
School Type						
Public	89.90%		90.30%		89.90%	
Catholic	6.70%		6.70%		6.90%	
Private	3.40%		3.00%		3.20%	
Skills Senior Year	Mean	SD	Mean	SD	Mean	SD
Locus of Control	0.06	0.97	0.08	0.97	0.06	0.99
Math Test Score	20.02	7.36	20.16	7.33	20.01	7.42
Verbal Test Score	23.51	8.52	23.63	8.38	23.46	8.49
Religious						
Not at all	21.90%		22.10%		21.90%	
Somewhat	64.40%		64.60%		64.20%	
Very Much	13.70%		13.40%		13.90%	
Political Party						
Has an Affiliation	56.00%		57.90%		57.90%	
None/Don't Know	40.60%		42.10%		42.10%	
Club Leader						
No	54.20%		55.00%		54.10%	
Yes	45.80%		45.00%		45.90%	
Number of Clubs Participated In	3.07	2.45	3.04	2.44	3.07	2.47
Highest Degree Earned						
High School or below	57.00%		56.50%		57.00%	

Table A.4 [cont.]	Full Sample	Matched Sample	Weighted Matched Sample
Some College	19.60%	19.80%	19.80%
Bachelor's Degree	20.80%	21.00%	20.60%
Grad/Professional	2.60%	2.60%	2.60%
Civic Participation in Early Adulthood			
Didn't Report Presidential Voting in Survey	45.20%	44.30%	44.50%
Reported Presidential Voting in Survey	54.80%	55.70%	55.50%
Didn't Report Voting in Survey	33.30%	33.40%	33.80%
Reported Voting in Survey	66.70%	66.60%	66.20%
Didn't Report Registering in Survey	18.80%	18.60%	18.80%
Reported Registering in Survey	81.20%	81.40%	81.20%

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